SATURDAY, NOVEMBER 27TH, 1909.

THE AUTOCAR

A Journal published in the interests of the mechanically propelled road carriage.

EDITED BY H. WALTER STANER.

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The Autocar.

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Notes.

A Successful Show.

There is no doubt that the show at Olympia which closed last Saturday is the most successful exhibition which has ever been held in this country. Last week we made it clear that so far as the all-round merit of the exhibits was concerned, it was unquestionably the best which has ever been held, and we are now in a position to say that both in point of view of attendance, of public interest and of sales, the exhibition has also beaten all previous records. Exhibitors whose show experience dates back many years were astounded at the keenness and intelligence of the visitors to this year's exhibition, and one of the most noticeable features was the practical interest which motorists took in the suitability of the car bodies for their requirements. They were not merely contented with comfort or with elegance of finish, but, thanks to *The Autocar*, they had also become critics of contour and all-round elegance of outline.

This is all as it should be, and we are delighted to record it, because nothing tends more to advancement in design and manufacture than for the makers to find their efforts appreciated, and that in the most practical manner possible. Those exhibitors who a year ago talked seriously of making the exhibition biennial or of alternating it with the Paris exhibition must have rejoiced that a wise majority would consent to neither course being taken. So far as our own convenience is concerned, it would be better served by a biennial exhibition, but we are convinced that nothing could be worse for the best interests of the movement or the industry which it supports. Last, but not least, the ventilation of the building was far better than in previous years, and it is well it was so, as the larger number of people who attended the show would have made it almost unbearable had the old conditions prevailed. As it was, it was very close and stuffy at times, but at the most crowded hours it was never as bad as in former years. The management as a whole was good, and we must congratulate the manager and the managing committee on the way in which the exhibition was conducted.

Silence.

Many visitors to the show at Olympia were struck with the near approach to silence of some of the cars running on the roads outside the exhibition. Some of these cars they had tried, others they had merely heard; but, however this might be, they were none the less impressed. The silence of a car at show time is much like show finish. In some cases it is merely an example of the normal running of the average engine turned out by the maker. In others it is not a fair specimen of the running of his average output, as his ordinary engine may be quite a coarse working motor. It is easy enough to make an engine run quietly, and it is not very hard to build it and adjust it so that it will pull exceedingly well, but it is difficult to achieve the happy combination of quiet running with adequate power and liveliness. We mention this matter in no hypercritical spirit, but with the idea of safeguarding motorists against disappointment, as there is not only this matter of special tuning for demonstration purposes, but there is also the very vital one of this quality of silence being lasting or merely transitory unless constant engine tuning be undertaken.

Given two cars of equal power and equally satisfactory running both from the point of view of silence and liveliness, the better car is admittedly the one which will maintain its beautifully smooth, quiet, and powerful working for the longer period without requiring adjustments or other skilled attention. We dwell upon these two aspects of the question because there is no doubt whatever that some comparatively roughly constructed cars run as well and behave almost

as satisfactorily as much better and more expensive cars in the early days of their active existence, and it is well, therefore, for the purchaser to remember that the day of fancy prices is practically over, and that, whether he pays, say, £350 or £400, for a given type of car, he will obtain value for his money, and no more. The maker who charges him the lower price of the two is not necessarily a more honest manufacturer than the one who charges him £50 more for what superficially appears to be the same thing. This is a truism, but there is always the possibility of it being forgotten or overlooked. We have purposely dealt with the engine alone, but in the main the same remarks apply to the transmission. The best makers turn out all their cars with gears which are quiet and smooth; those who take less care and lower prices often content themselves with a few silent cars for demonstration purposes, the rank and file of their output possessing gears which are very far from smooth or quiet in working. Quietness means care from the start of manufacture and through all the processes right up to the finish of construction and testing, and it costs a lot of money to achieve perfection in this respect.

A Forward Movement.

On another page we deal with the important developments which are taking place in connection with the Motor Union. Its growth and consequent increase of revenue has rendered possible a further increase of benefits to members. Perhaps the most important is the scheme for free legal defence to members, whereby every individual member of the Union will be entitled to the professional services of one of the appointed solicitors of the Union without charge once every twelve months if he should require such services for his defence against any charge brought against him for driving to the common danger or exceeding the legal speed limit. The limitation of free defence to one occasion in twelve months is necessary and desirable not only on account of the fact that more gratuitous legal assistance than this might unduly increase the liabilities of the Union, but also because it might tend towards encouraging reckless or careless driving. The most careful motorist may be a victim of an unfair or an unjust charge for driving to the common danger or for alleged excess of the speed limit. On the other hand, if these charges are frequent it is safe to assume that the driver is not careful or considerate, and therefore it is not desirable, in the interests of motoring generally or the Union in particular, that he should be encouraged. We admit that there are cases in which the limitation might press hardly, but they are so few and far between that they are unworthy of consideration. The appointment of a travelling organiser is also another good scheme, as this official will devote himself to assisting the committee in the extension of touring facilities, the formation of local committees and centres, and the appointment of honorary county secretaries and honorary correspondents in towns where none are already appointed. By continually travelling about the country he will get into touch and keep in touch with the requirements of each district. Then there is the formation of the aviation section and the removal of the staff to larger and more convenient offices at Caxton House, Westminster, which are more than sufficient to show that the Union is vigorously pursuing an active forward policy.

Eastern Province (South Africa) Automobile Association. Reliability trial from Grahamstown to Heatherton Towers. Some of the competing cars at Botha's Hill.

At the village of Farningham, Kent, located at the foot of two hills, both with dangerous junctions, more than ordinary care is necessary, and although a prominent and politely worded board is erected at the approach on the Maidstone side, there is need for similar warning on the London side. Of course, frequenters of the road are aware of the danger, but it constitutes a very real danger to those unacquainted with the road.

Last week we had a short run on a 40-50 h.p. six-cylinder Hotchkiss. This is a large car with a 120 by 140 mm. engine, and an 11ft. 10in. wheelbase. We were told that one of the special points of the car was its silence, and we certainly found it quiet. On the direct drive nothing but a murmur and a faint "breathing" from the carburetter could be heard. By far the noisiest thing about the car was the patter of the steel-studded tyres on the road.

Useful Hints and Tips.

A Cure for Loss of Power.

MY late experiences may be of use in your "Useful Hints and Tips" columns. A new car (22 h.p. of Italian make) began gradually to lose power. Also whenever the accelerator was opened it knocked. This seemed to point to flooding of the carburetter, but nothing wrong could be found there. The magneto (Bosch high-tension) was next suspected, then the plugs, but the ignition was quite in order. At last I decided to take the cylinders off and see if they and the pistons were foul and causing pre-ignition, and then the trouble was found. The valve stems had been made a trifle too fine a fit in the guides! A little rubbing with emery paper and all was as it should be, and now all the old power and sweetness is back, and one can't make it miss if one tries.

The car, by the way, is a 1909 S.C.A.T.—P. L. N.

A Blocked Jet.

Apropos your remarks on the above in your issue of October 16th, I may mention a useful roadside remedy which I was once shown by a chauffeur who came to my assistance on the only occasion on which I have been held up on the road by a blocked jet. It is this: Unscrew the top of the induction pipe so that the top of the jet is visible. Take your tyre pump, press the nozzle against the top of the jet and blow. The result, of course, is to blow the obstruction back into the carburetter, and though no doubt theoretically this is not a complete cure, as the offending substance remains in the carburetter and may be drawn up again, practically there is a very good chance that next time it may be sucked right through the jet; and anyhow there is a reasonable prospect of getting home without further trouble, when of course the carburetter may be taken down and properly cleaned.—C. H.

Road Considerations in Driving.

In driving a motor car it must be understood that a road is not artificially kept clear of obstructions like a railway line. Therefore, first considering the case of a motorist who can see no obstruction on the road, but *may* meet one at any minute, he must in the event of an obstruction coming into view be able to stop before reaching it, *i.e.*, he must be able to stop before reaching the farthest point on the road he can see. This important rule allows a very high speed on an open road, but necessitates reduction for corners and in a fog, and at night speed on the open road is practically limited by the power of the headlights, which in the case of the best lamps is a speed such that the car can be stopped in about sixty yards. A reduction is necessary for greasy roads in all cases.

Secondly, considering the passing of small roads running into the main road, it is quite certain that at whatever speed a car passes a small road a person can always emerge from that road at such a moment as to run into it; therefore speed has nothing to do with liability to accident in such a case, and unless legislation is introduced compelling persons emerging from side roads to do so at a walking pace the danger will remain.

Thirdly, for similar reasons motorists should approach blind cross roads at a walking pace, and should conscientiously observe the rules of the road. Still it must be remembered that an absolutely literal interpretation of this rule will not always avert disaster, though it may put the onus on the other party.

LIEUTENANT R.N.

Wet Wind Screens.

No wind screen can ever permit a perfectly clear vision when it is heavily spotted with rain; but a wind screen can be so prepared that it cannot either stream with water or be really heavily spotted, by the simple precaution of smearing it with glycerine before the car is taken out. In any sort of rain the improvement amounts to about 30%. If desired, the glycerine can be thinned with alcohol. [We have never obtained much help from this treatment of the screen.—ED.]

To Start Up an Engine after Standing for a Long Time.

Monsieur H. Féron, a contributor of our valued contemporary *Omnia*, discourses on this matter at some length in quite an interesting vein. He says: "In the case of an engine that has been standing unworked for a long time, it frequently happens that the motor is found to turn with great difficulty, and that there is little or no compression. In such cases some people are in the habit of introducing petrol to the cylinders by means of the compression taps or the sparking plug orifices. Occasionally these measures succeed, but not often. When they fail they only aggravate the evil. For my own part I have always advised injecting engine oil into the cylinders or a mixture of half cylinder oil and half paraffin. The root of the trouble is the fact that during the long stationary period nearly all the oil has flowed down the cylinder walls back into the crank chamber, while what remains having become oxidised no longer presents any lubricating qualities. Those portions of the pistons which are consequently devoid of oil are dry and the metal surfaces are directly in contact with each other, thus on the compression stroke the gas can leak by.

The suction on the carburetter, though the latter be the best of its kind, is consequently relatively weak, and a very poor mixture finds its way into the cylinder. When petrol is introduced into the cylinders the four explosions resulting are sometimes sufficient to start up the engine and raise some oil on to the cylinder walls, but it frequently happens that the explosions so induced are too weak to actually start the engine, the exploded gases passing down the walls of the cylinders past the pistons for the reasons given above. The petrol so introduced having dried up what little oil remained in position, the engine becomes harder to start than ever.

"On the contrary, the thinned engine oil will flow between and round the piston rings and form a good gas seal at once; it will disperse the old dried oil or liquefy it and so render it useful; the engine will answer sweetly to the handle, a good suction will be exerted on the carburetter; a good mixture will result, and the engine will start merrily. It must be understood, however, that this happy result will only ensue when the engine is furnished with a good carburetter which will permit easy starting up when cold under ordinary circumstances. If, however, the carburetter is known to be stubbon under such circumstances the thinned oil treatment must be followed and the engine turned round by hand until it turns with its wonted sweetness. Then petrol, sufficient to compensate for the shortcomings of the carburetter, may be introduced through the compression taps or otherwise, but not enough to disperse the oil. Indeed, it is almost best under these circumstances to squirt the petrol into the induction pipe close up to the valves rather than into the cylinders themselves."

"The Autocar League."

"THE AUTOCAR LEAGUE" HAS NO SUBSCRIPTION. ITS AIMS ARE TO OBTAIN THE SUPPORT OF EVERY MOTORIST IN THE UNITED KINGDOM, SO THAT WHEN MATTERS OF VITAL IMPORTANCE COME UP FOR DISCUSSION A POSTAL REFERENDUM CAN BE TAKEN. THE RESULTS WHEN COMPLETED ARE COMMUNICATED TO THE GOVERNMENT OR OTHER AUTHORITIES CONCERNED, AND ALL THE CLUBS AND MOTOR ORGANISATIONS ARE NOTIFIED. ON CERTAIN OCCASIONS THE MEMBERS ARE ASKED TO TAKE UNITED ACTION, SO THAT INJUSTICES MAY BE REMOVED OR ABUSES STAMPED OUT. IT IS ONLY BY SOME SUCH SYSTEM AS THIS THAT MOTORISTS WILL BE ABLE TO OBTAIN FAIR AND JUST TREATMENT.

A Protest.

An influential member of the League has drawn our attention to a case of police obtuseness in Shropshire. We quote the following report of the proceedings from the *Shrewsbury and Border County Advertiser* for October 26th last:

ALBRIGHTON DIVISIONAL SESSIONS.

Thomas Shaw was charged with being drunk in charge of a motor car at Montford Bridge. Defendant, who did not appear, was represented by a solicitor, who, on his behalf, pleaded guilty. The facts of the case were stated by Charles Blake, landlord of the Wingfield Arms, Montford Bridge, who said that seeing Shaw's condition he drove into Shrewsbury for a motor car driver, and failing to get one informed the police. The Bench retired, and returning, said the case was not taken under the Motor Car Acts, and Shaw's licence would not be endorsed, but they thought they would be doing their duty by fining him the full penalty of 40s. and costs.

It will be observed that the defendant was proceeded against simply under the Licensing Act, notwithstanding the fact that he pleaded guilty to being drunk while in charge of a motor car. In other words, he was fined for drunkenness only, and his being in charge of a car at the time, which greatly increases the gravity of the offence, appears to have been entirely condoned by the police. The defendant's address was suppressed, and the case was not reported at all in some of the newspapers which circulate in the district, although their reporters were present when the case was tried. We cannot help wondering why the police failed to take proceedings under the Motor Car Act, especially as only recently they tried to obtain a conviction under Section 1 of the Act in a doubtful case of exceeding the speed limit. Yet, here is a case which, instead of being made an example of, is hushed up. We are glad to give publicity to the natural indignation of local motorists at this perversion of justice on the part of the police authorities. Such lamentable weakness and lack of responsibility for the public safety is most reprehensible. The magistrates cannot be blamed for the nature of the summons taken out, nor would we prejudice Shropshire's reputation for its fair attitude towards motorists generally, but we feel that the incident calls for a strong protest. We only hope that motorists who unwittingly commit merely technical breaches of the law will be as leniently dealt with.

Licences and Rates.

Our circular letter asking motorists to pay their licence fees in countries where they are fairly treated has stirred up considerable interest in certain county councils, and there has been much gnashing of teeth, particularly in those counties which were not included in the "clean" list. This result is very gratifying, and may bring home to county authorities that the motorist they have so ruthlessly persecuted has found a vulnerable spot and will not neglect it. We should have liked to have dealt with this question at some length, but space will not allow us to do so, and all we wish to touch upon is a query which has been raised by several correspondents who ask, are they not "cutting off their nose to spite their face," in that by transferring their licence fees from their domiciliary areas they will increase the rates, and so penalise the general body of ratepayers for the maladministration of justice by magistrates and the mendacity of prejudiced police, over neither of whom they have any official control? This looks at first sight very unfair, but a careful examination of the links which for all intents and purposes make the county council, the police, and the bench a single chain of authority will demonstrate that ratepayers have it in their power to effect reform, but they will not do so until they realise the necessity. A great many more people who pay the rates do not own cars than those who do, and the afflicted minority are quite willing to make a small sacrifice if it can thereby draw the attention of the general body of ratepayers to the injury done to the county and their interests by their elected representatives through their tacit approval of despicable police methods, and the peculiar conception of justice and law on the part of a prejudiced bench. It is utter nonsense to accuse the League of intimidating magistrates to an improper administration of the law. It is quite the reverse, as we have before stated, and we are quite within our legitimate rights in suggesting to motorists that they should pay their money to authorities who show some sense of honourably discharging an obligation instead of to tyrants by way of propitiatory offerings for a long hoped for cessation of hostilities.

The Case of Cheshire.

On November 6th we showed how the attitude of the League had been mistaken by members of the Cheshire County Council, and also how a number of papers circulating in the county had participated in the misunderstanding. At the same time we published a copy of a letter which we had addressed to the Chairman of the Main Roads Committee of the Cheshire County Council, as we were most desirous that no misunderstanding should exist in the minds of the Cheshire authorities. Since then further correspondence has passed between us and the Chairman of the Main Roads Committee, Mr. C. H. Pedley, who has taken the greatest possible interest in the matter. It is true he does not agree with our views, but as the correspondence is most interesting we have obtained his permission to publish it, and hope to do so next week.

How to Join the League.

There is no subscription to "The Autocar League." All that is necessary for anyone to do who wishes to join is that he should send us his name and address, the horse-power and make of his car, and also express his willingness to vote by postcard or letter on any important matter concerning the welfare of automobilism whenever he may be called upon to do so. We need hardly say the name and address will not be divulged under any circumstances whatever, and will only be used to communicate with him on matters concerning "The Autocar League."

Some Extracts from "The Autocar League" Correspondence.

NEEDLESS ALARM.

Can you reassure members of the League that in taking out their new licences elsewhere than in the boroughs or counties in which they reside, they will not become marked men in their own districts and subject to undue attention on the part of the local police?—A MEMBER.

TYRE TAXATION.

There is one point which those writing in favour of a tax on tyres seem to have overlooked, namely, that the worse the condition of the roads the greater the wear on tyres. Therefore the more the authorities neglect the roads the higher the tax the motorist has to pay. This would particularly be felt by those who, like myself, live in a place not noted for its good road surfaces.—TYRED TIM.

TAXATION OF CARS.

An idea has occurred to me which I venture to communicate in case someone with more expert knowledge may think it suggests anything worth consideration. Would it not be possible for the Inland Revenue inspectors to be provided with some form of meter, which could be attached in place of the sparking plug, and which would give a certain reading of the air drawn in or ejected by a stroke of the piston, the engine being swung by hand?

Reference to a table should give the tax for a car with any number of cylinders corresponding with any reading of the meter. If such a table could be compiled, which would be fairly correct on the average, the process of rating any car would only occupy a few minutes (even supposing a couple of minutes' previous running should be necessary), and would give the minimum of trouble both to the owner and the government inspector, while possibly letting off old worn out engines rather more lightly as should be the case.—THOMAS BOLTON.

MOTORISTS AND THEIR LICENCES.

I had intended to take out car and dog licences in Kent next year, but shall presumably have to select a more enlightened county. "20 h.p." and other correspondents appear to be under the impression that by observing the letter of the law they will escape persecution. Let them confine their drives to Surrey and Sussex, and they will in due course still be summoned, owing to the unreliability of police timing and defective watches. I personally have been prosecuted for driving at an alleged speed of thirty-eight miles an hour, though I was able to convince the bench that my actual speed never exceeded twenty miles an hour. Result a day wasted in the police court, and expenses of nearly £3. Your correspondents should remember that many highway laws are never now enforced, *e.g.*, leaving a horse and cart unattended, and the maximum speed limit of twelve miles per hour for traffic other than motor traffic.—SURREYITE.

[Will our correspondent give further information respecting the highway law to which he refers fixing the maximum speed limit of twelve miles per hour for traffic other than motor traffic?—ED.]

STATE OF THE ROADS.

I was interested to read the letter in your issue of October 16th signed by Dr. Wilfred Balgarnie, complaining of the methods adopted by most road authorities for the repair of roads.

As I have recently driven some considerable distances in England and Wales, and am by profession a civil engineer, you may think the following notes of interest.

In August I covered Somersetshire and Gloucestershire, and found the repairing usually well done, particularly on county roads. Almost always, however, the metal was laid right across, not halfway at a time. I scarcely think we must object to this, provided the roller deals with the metal before dark. Occasionally, however, I came on a patch of unrolled metal when driving at night. This should be stopped. The roller could work half an hour later than the stone carts.

In September I went to Evesham and district: much the same methods. From there I traversed Shropshire and into Cheshire; the same methods, but very first-class materials, particularly in Cheshire. I noticed in this county the holes were being carefully patched with tar macadam about 1in. ring stone. This is good work.

Then on to Manchester some most villainous roads were traversed; indeed, almost all the macadam within ten miles radius was almost undrivable at over 15 m.p.h. unless with tyres at about 30 lbs. pressure. The paved roads in the city are excellent—for paving—but in the suburbs they consist of setts about nine or ten inches cube, and—printable language fails one.

Then on across North Wales to Beaumaris and Holyhead, I was astonished to find on Telford's grand roads that the holes were patched with loose large granite or limestone about two inches square. It was most irritating to have to wriggle in and out, avoiding these patches. Of course, they did no good; the horseflesh scattered them gradually. Telford never allowed stone over 1in. for small patching.

Then down the coast to Aberystwyth and Aberaeron much the same kind of patching was encountered, this being especially bad near Carnarvon.

From Aberaeron to Lampeter the road was fair only, but from Lampeter through Llandovery, Brecon, Abergavenny, Monmouth, and Ross to Gloucester I felt the road surveyors should be knighted. Though much of the main road is motor 'bused, the surface is magnificent, and every surveyor knows what damage the 'bus does. From Gloucester to Bristol conditions improved, but the roads were rough in places. I was glad to notice the patching was done with fine tar macadam.

During October I did Bristol, Bath, Warminster, Salisbury, Bournemouth, and back to Bristol *viâ* Blandford and Shaftesbury. In the New Forest the fresh gravel was left unrolled for days together, and did pounds of damage to my tyres. The county surveyor here (Bristol) should travel in Cheshire and Shropshire a little. Perhaps he thinks the loose gravel assists the numerous police traps in the county to check speed. It is coming to something when the A.A. puts up its notices round Christchurch, "Slow for five miles." Why not say fifty, and have done with the matter?

Between Poole and Blandford the road is awfully cut up by traction engines hauling bricks. I wish Mr. Lloyd George could have traversed that piece of road with me. There were ruts inches deep. I saw my petrol tax and increased licence fees helping to pay for repairs while the real culprit escaped scot free. Blandford to Shaftesbury, very fine surface; and Shaftesbury to Warminster almost as good. I commend this length to brother motorists—mostly open, rolling downs, no fences, wind-swept roads, no police, with a view of the thin yellow ribbon of the road for a mile ahead, and neither trees nor hedges to intercept the prospect. Even I, a cautious driver of ten years' motoring, with a clean record, felt afraid to glance at the trembling speedometer needle. Curiously enough, on this stretch I met one car only. From Warminster to Bristol I tried a short cut through Midford and Odd Down. The map shows this saves one and a half miles as against the road through Bath. I saved my one and a half miles, and after skating down greasy limestone and oolite metalled hills of, say, one in eight gradient, found I had lost a good half-hour in time. It is better to go *viâ* Bath. Road repairs were in progress as I neared Bristol, and they were being well done. There is a stretch of tarred road in Keynsham, but it is not being kept clean, and will soon go to pieces in consequence.—T. B. C.

BROKEN FLINTS ON ROADS.

Cannot you use your influence to remedy the following complaint? Since the present frosty weather has set in the authorities at Kingston have started strewing the streets with sharp split flints, and some specimens I have taken out of my tyres are some of the sharpest things in the stone line I have had the misfortune to pick up. Consequently in the last two days my rubber tyres have been very badly cut about, solely by these sharp flints or stones in Kingston. In previous years gravel has been put down, which does no harm, and prevents slipping. Surely the authorities can be prevented from putting such destructive material on the roads. It is obvious other users of cars passing through Kingston, and especially residents, will suffer as much as I do. I notice the Wimbledon authorities are using the same sharp stones.—KENNETH LANKESTER.

THE SPIRIT AND THE LETTER OF THE LAW.

I have toured this year for four and a half months *en automobile* in France and Spain, and came home for a long rest, but am so disgusted at seeing my number dotted down every twenty miles by either a policeman or an A.A. scout, that I am negotiating at the present time for the storage of my car in France over next year, in which case I shall pay no motor licences at all to any county, and do all my motoring in a country where they know how to distinguish between the spirit and the letter of the law.—HERBERT H. PEARSON.

From Spain to Italy by Motor Car.

Being a gossip concerning a spring tour along the foothills of the Pyrenees and over excellent roads little known to the average British Motorist.

By H. Massac Buist.

"AUTOMOBILES Despacio" is a sign so frequently in evidence on Spanish roads, and so little heeded alike by the authorities and the motorists, that one can excuse the chauffeur who came to the conclusion that it merely meant "motor cars that eat up space." Truth to tell, the road from San Sebastian to Biarritz is an uncommonly inviting one, in that all the curves and corners are banked, and it is hoped that in the fulness of time these conditions will obtain quite to Madrid, for King Alfonso delights to drive by this route into France. In matters motoring they are excellently sensible in Spain, for there is no bother of changing numbers if you come over the borders from France, and in place of fiddling about to ascertain precisely how much petrol you have on the car, there is a universal charge of seven francs "full or empty." Such are the methods that obtain in a country where every postage stamp is numbered on the back, where all officials wear resplendent uniforms, and the nurses are more stylish than in other countries; where the quaint old churches in the border towns and villages are as like one another as two peas, and the men flock into the gallery while the women occupy the nave and aisles. Driving into France you miss the pack-mules almost as soon as the border is crossed, the customs being negotiated at Behorade, whereas if you are travelling by rail the change of coaches necessitated by the very broad gauge employed on the Spanish railways occurs at Irun. A little further along the road one passes through St. Jean de Luz, picturesquely situated in the bay at the mouth of the Nivelle, and which prospered exceedingly from the fourteenth to the fifteenth century, when whale yet frequented the Bay of Biscay, and the French had their will of the cod fisheries off the fog-bound Newfoundland Banks.

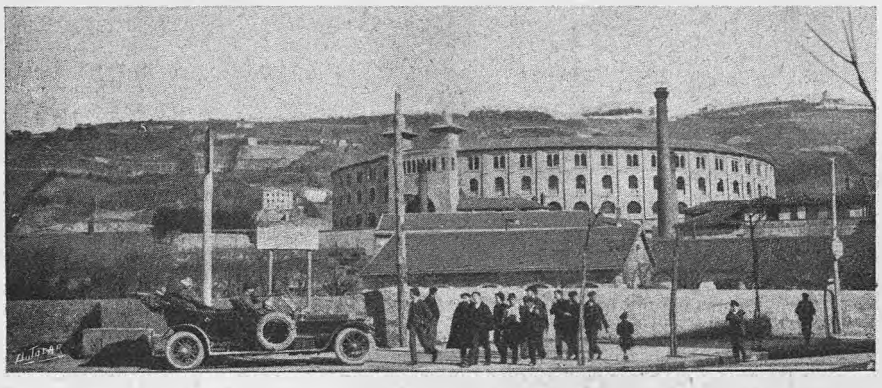


Fig. 1.—Nueva Plaza de Toros, San Sebastian, whence the tour started.

From San Sebastian to Biarritz is a stage of only thirty miles, the Bordeaux Road being quitted five miles further on at Bayonne, where the mixture of Basque and Spaniard is in striking and predominant contrast with the French type, the resultant *patois* spoken being something far more akin to the Spanish than to the French. This is perhaps the last place in our tour along the foothills of the Pyrenees into Italy where we are reminded that England once held sway over French territory. Here the bayonet is supposed to have been invented and the massacre of St. Bartholomew planned. There is splendidly fast going along a relatively level, broad, and little-frequented road after leaving Peyrehorade, the stretch through Orthez and Artex to Pau being particularly inviting, albeit very dusty. Here it is convenient to call a pause, if not for the purposes of an excursion to Pont Long to see the inevitable aeroplane in flight, in any case for *déjeûner*, for this is a hundred miles stage from San Sebastian, and if you are driven by the Hon. C. S. Rolls, as I was, you will begin to wonder how any man can successfully practise the two-meals-a-day-and-mostly-vegetables theory, with no breakfast when starts are made in the very early morning, and north-east gales are blowing at fifty miles an hour on to the side of the car. Certainly he is an excellent testimonial to the satisfactoriness of the system.

On resuming the road a hairpin descent brings you to some very fine aeroplaning grounds on the road that leads to Tarbes, so that whenever one hears of Mr. Wilbur Wright indulging in a bit of aerial scouting by disappearing from sight in the direction of Tarbes,

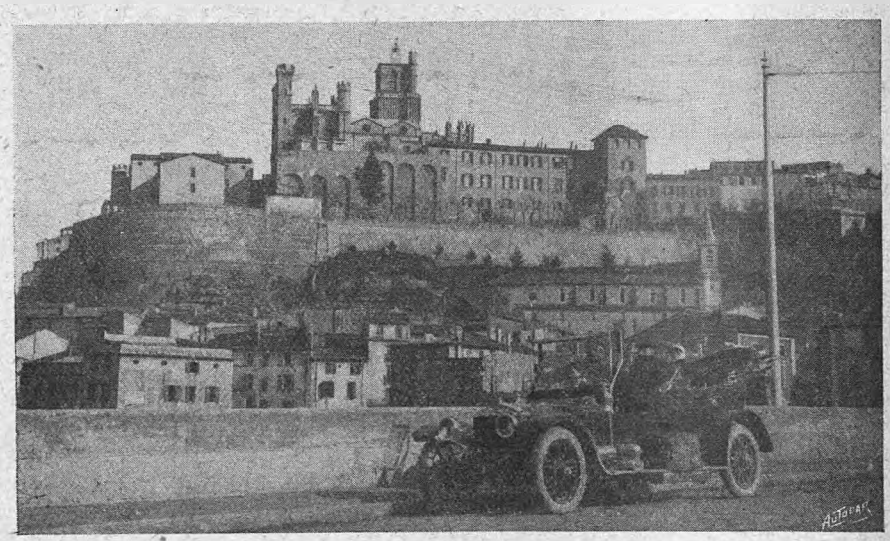


Fig. 2.—Beziers, of wine and brandy fame, a town of 52,000 inhabitants that was colonised by the Romans.

one feels, should it be necessary for him to effect a landing, he will find admirably suitable ground in plenty. Our six-cylinder Rolls-Royce car took the series of serpentine rises from Tarbes to Tournay in splendid style on the direct drive, despite our being unduly weighted with luggage and being four up. Few road sensations are more delightful than to be seated on a well-sprung, speedy, and silent car with a very ample wheel-lock, which is being kept fairly on the waltz as it threads its way round the twists and turns of a well-engineered hilly road. There followed a sudden check to the experience, however, for almost five miles either side of Lannemezan; for it was Ash Wednesday and every path across the hills for miles was alive with cattle of all kinds, being driven into that town to be blessed. The sheer novelty of the experience put away all thoughts of irritation that might have been occasioned by the delay. One seemed to have lit on a people in mediæval times that had received warning of a pending attack from a foe, and were all flocking to the nearest fortress town for protection. They had plainly come very great distances, for many were camping out by the roadside. There was compensation for the delay, too, in the fine, fast, and flat road that led to Saint Gaudens and St. Girons. Hard by Maury, on the road to Mas d'Azil, the hills on the left contained grottoes and memorials set in such wise as to put one quickly in mind of Ober-Ammergau. Before reaching Mas d'Azil the road leads through the extraordinary grotto which, though it is of no extent, is so tortuous as to shut out the light and necessitate head lamps. All hereabouts the letters and figures on the signposts are set on the wrong side; nor does the rational method obtain until after one has left Nîmes.

Fig. 3.—The Roman amphitheatre at Nimes, where bull fights are still held in the summer months. The whole building is composed of great cubes of stone perfectly mortised without mortar.

Proceeding through Pamiers and Mirepoix along a route unique for the number of very ancient and natural fortress towns, one comes to Carcassonne, that flourished in the Roman period, the historic part of which, styled the Cité, stands on a hill on the right bank of the Aude. We found this an excellent place in which to spend the night. After enquiries, we came to the conclusion that the Hôtel Bonnet was the one held in most esteem by the inhabitants, who, nevertheless, had great trouble in directing us to it. Experience proved that we had been well advised, for never were guests more excellently entertained or charges more moderate. On setting forth early the following morning, we came to the conclusion that the Carcassonne had points in common with Constantinople, in that there was a rubbish heap in front of every door, and there was a dog investigating the contents of every rubbish heap. Progress by way of Capendu and Nézignan, where one first has sight of the Gulf of Lyons and Narbonne, was not as quick as it might have been, owing to the extraordinary manner in which hay-carts are overloaded, so that they swamp the entire road, requiring a sort of giant antimacassar to prevent the loose hay being gradually blown away. Nor did the stiff north-easter that blew aid our purpose, for it caused all the country folk to pull hoods over their heads, in consequence of which the best blasts of the signal horn failed utterly of being heard. They have a most delightful way of steering a horse when they become aware of an approaching car. The shafts run right through on one beam to the extreme rearmost portion of the carts. Therefore the men in charge seize these rearmost parts and pull them sideways outwards towards the road, with the result that the shaft presses on one side of the horse, so he takes the hint by getting as near the side of the road as possible. This is more effective than the method adopted by some of the slow-minded carters, who when they first espy you will be walking on the left side of the horse's head. They would not dream of stepping in front of the animal to get at its right side, but stand still until their cart has passed them, then cross over behind it, and begin working up their way from tail to front along the other side, by which time you are usually a village or two away.

The route lay through Béziers, far-famed for the production of good red wines, and picturesquely situated on a hill top, to Pézanas, yet another ancient Roman town with an important trade in cognac, Mèze, and Montpellier to Nîmes, which is an excellent stage for luncheon, provided an early start has been made. The ancient Roman amphitheatre, dating from the first and second centuries, is better preserved as to exterior, but is smaller than those at Rome, Capua, Verona, and Arles. Like all ancient Roman buildings of large size, the huge stones of which it is constructed are perfectly adjusted without mortar. Here you may still see bull fights during the summer months on Sundays. The amphitheatre could accommodate 24,000 spectators. From here through Tarascon, St. Rémy, Orgon, Maillemort, and Lambesc to Aix is fast going through open country, for the Pyrenees that have been kept in view on the right are now left behind, together with the strange speech of the people. Scarcely had we come to Le Luc than heavy snow fell, so that it was needful to clear the screen every few minutes, until at last it became frozen, and could not

be rubbed off. Then Mr. Rolls bethought himself of having a rag warmed on the radiator sufficiently to thaw the drift off the screen. When not far from Cuers the sky cleared and the sun came out for a brief spell, but by the time Besse was reached great darkness came on, and the party drove into the blinding storm, the snow very soon being nine inches under foot. The Cape cart hood failed completely to keep the snow out, and it was extraordinary how our veteran driver contrived to keep the car crawling along at all in the awful cold that then prevailed in those parts of the Monts des Maures. There had plainly been snow hereabouts for a long time, for there were high ridges of it on either side of the wheel tracks, frozen so hard and rough that one could not put the wheels on them, but had to keep strictly to the tracks, the middle portion of which stuck up unpleasantly near the bottom of the car. Happily the Rolls-Royce experience in building cars for America stood us in good stead, the car being none the worse for the adventure. In that day's drive two cars held up for snow were passed, and Mr. Rolls declares that he has never driven through a heavier snowfall, except in Canada. Certainly our car was the only machine abroad, for wherever we went we had to make fresh tracks, the speed being reduced of necessity oftentimes to not more than five miles an hour, the crunching of the frozen snow as the wheels of the silent machine crept over it striking strangely on the ear.

Several times the party was warned not to continue, but the thought that the longer it snowed the more impassable the Esterelles would become spurred us on, so that, the accommodation at Fréjus being none of the best, it was decided to go on over the mountains, despite the fact that it was now a quarter to three, and Mr. Rolls had had nothing to eat since dinner the night before. Though a lot more snow was encountered, it was not frozen except at the top of the mountains, so the long pull up proved an easier task than we had dared anticipate. The tops of the mountains broke through the clouds, and the sudden change to conditions of warmth when the car was brought to the sea side of the Esterelles was extraordinary and most interesting.

Snow was plainly an unusual experience in many of the villages we passed through, as the people had given over work, as we sometimes discovered from the thud, thud, thud of snowballs landing on all parts of the car; yet in less than an hour we were in the vicinage of Cannes, scurrying over dry and dusty roads. What Mr. Rolls styles the "wibbly-wobbly" part from Nice to Monte Carlo proved rather embarrassing in the dark, for it was surprising to encounter more snow hereabouts. The route to the Italian frontier is pretty, and follows the sea all the way. Though it is not hilly it abounds with twists and turns, and the drivers of the Italian vehicles are extremely indifferent folk, who never seemed surprised when a car suddenly discovers them on the wrong side of the road. The surfaces are rather stony, and the *pavé* is bad in the villages, but the Italian Automobile Club has done very well in the matter of setting up warning boards at corners. The Customs formalities when going into Italy are not so simple as those of Spain. One has to deposit £24 in gold at the Customs house, but the officials seem to take no pains to write down a description of the car. Instead they ask for one's French Certificat de Reception (Carte Grise) and make a note of the number of it, charging a few francs for petrol according to where one is going. However, the Italian Customs people were fairly prompt, taking only ten minutes to complete their formalities.

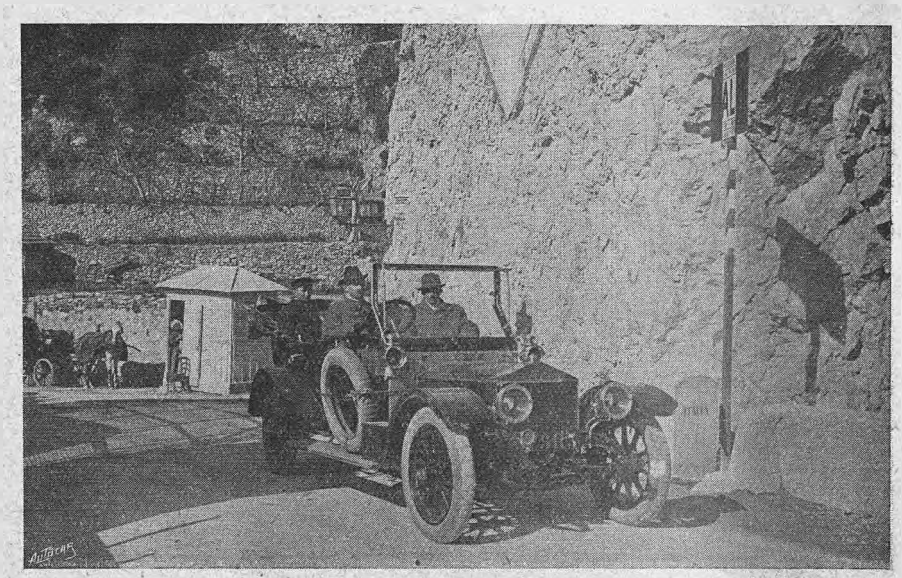


Fig. 4.—The Hon. C. S. Rolls on the six-cylinder Rolls-Royce crossing the frontier from France to Italy, the Customs formalities not being so simple as in the case of passing from France to Spain.

Sheriff Mitchell at the Stirling Sheriff Court the other day had a case before him of a motorist who was summoned for exceeding the speed limit, and it appeared from the evidence that the constables who did the timing neglected to give the motorist either at the time or within twenty-one days of the alleged offence formal warning of their intention to prosecute. This point was raised in defence, but for the police it was contended that notice to prosecute must be inferred from the fact of the constables having stopped the car, taken its number, shown the accused the time registered on their stop watches, and taken his name and address. The Sheriff said that in his opinion Section 9 of the Motor Car Act seemed to presume that the mind of the authorities might not be made up at the time of the offence as to what action they would pursue, and accordingly a warning must be given there and then of the intention to prosecute or intimation must be made in twenty-one days. In this case he did not think, on the evidence, that notice had been given at the time, and it was not given afterwards. As the alternative was given of sending official notice in twenty-one days, it was all the more necessary that when notice was given at the time of the offence that warning should be definite and formal. The case was dismissed.

The New Composite Fuel, "Rapidin."

The Method of its Distillation.

IN *The Autocar* of November 6th mention is made of a new spirit known under the registered title of "Rapidin," and the numbers of the British patents referring to it are given, viz., 14,671 and 22,561, both of 1907.

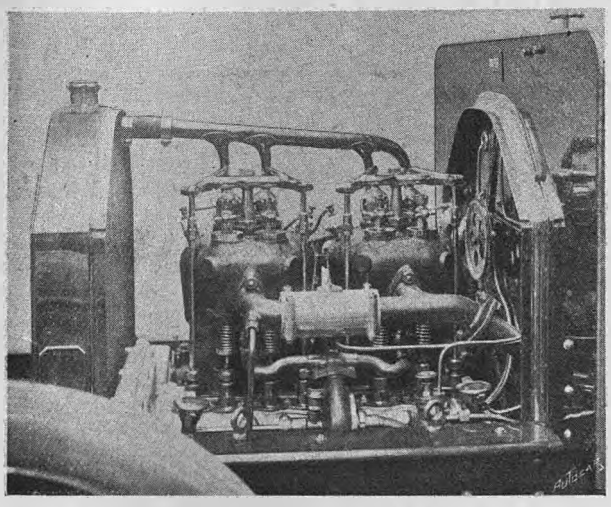
Before dealing with the process of manufacture of this fuel as set forth in these two patent specifications, it is desirable to have some idea of the process of distillation as applied to ordinary mineral oil refining.

Crude petroleum, whether found in nature or obtained by retorting bituminous shale, apart from its chemical composition, is a mixture of oils of different densities. If this crude oil be heated, its more volatile components will be evaporated first, and it is these light oils which are required for motor work. To show how far this crude petroleum is from being a homogeneous mixture, it may be stated that from the same oil may be obtained the very lightest and most volatile of naphthas, so light that they are with difficulty kept in a liquid state at ordinary temperatures, and the semi-solid vaseline; while, if the variation of temperature is carried further and heat subtracted by freezing, the completely solid paraffin may be won. Putting the liquid products of distillation in the order in which they come, they are: Light naphtha, which is almost a gas, .625 to .660 specific gravity; naphtha, gasolene, or petrol, .660 to .710 specific gravity; a heavier naphtha, .710 to .800 specific gravity; ordinary paraffin or kerosene, .800 to .865 specific gravity; light lubricating or gas oil, .865 to .880 specific gravity; heavier lubricating oil, .880 to .890 specific gravity; and the heaviest lubricating oil, about .890 to .900 specific gravity.

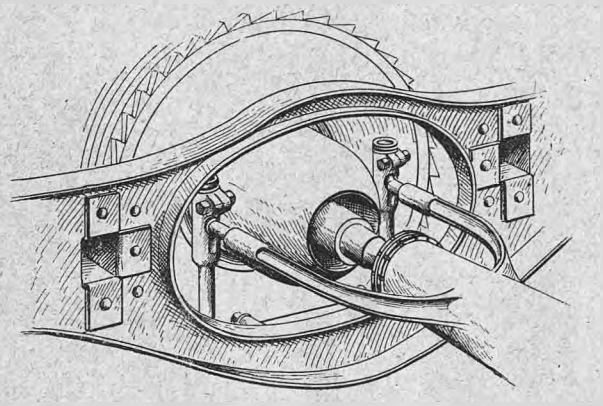
The process of separating the components of the crude oil is called fractional distillation. As the name implies, the oil is divided into fractions, that is to say, the distillates are separated according to their densities.

The proportion of light oils, oils which evaporate at ordinary temperatures, is comparatively small, and as motors have enormously increased the demand for such oils, it can be understood that means for increasing the yield are eagerly sought.

From what has been written, it is clear that the application of heat for the purpose of distillation produces no chemical change. The effect is merely a physical separation. There is, however, a process involving the application of heat, by which a chemical change may be produced. This process is called "cracking," and, broadly, it consists of letting a comparatively heavy oil drop on a plate or into a still heated to 400° Fahr. The sudden heating of the oil thus brought about causes it to drop some of its carbon, with the result that the vapour when condensed is an oil of a lighter specific gravity than the paraffin before it was cracked. This process, however, does not seem to have attained commercial success.



AT OLYMPIA. The engine of the 14 h.p. Rapid car.



AT OLYMPIA. The forward end of the Minerva torque tube, and the excellently designed cross member.

In the two specifications of which the numbers are given above, a method by which an increased yield of fuel from oil which itself is not easily enough evaporated for motor purposes, is described. The word fuel is used advisedly because the result is not an increased yield of petrol, but of a fuel of a different nature. Petrol, however, is used in winning it, but it would appear that the petrol can be invested at a high rate of interest, for it is claimed that one gallon of petrol will produce from the heavier oil two gallons of Rapidin. However, as subsequently appears, more than petrol has to be invested.

It is quite well known that petrol by itself is not combustible. It is essential for its combustion, either in the slow form of inflammation or in the more rapid form of explosion, for oxygen to be present. For most purposes the chief source of oxygen is the atmosphere. But in the first of the two specifications the result of the process described is a liquid fuel which in itself contains sufficient oxygen for its own combustion. Now, in spite of the inventor's assurance that "the liquid is quite safe from liability to explode by accident, and is only caused to explode by a naked flame or an electric spark," it will be generally agreed that of the two, an inflammable fuel is preferable to an explosive one, and the same conclusion seems to have been arrived at by the inventor, for in a specification dated a few months later he describes a somewhat similar process, the resulting fuel of which requires additional oxygen for its combustion.

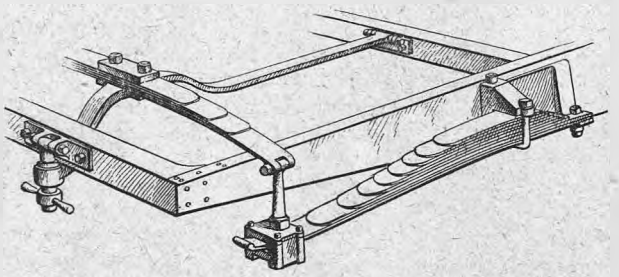
As a concrete example of the process is given, it is herewith quoted:

"I will illustrate the invention by describing the treatment of a mixture of kerosene with benzol, but the treatment can equally well be applied to other mixtures of comparatively heavy and comparatively light hydrocarbons, such as a mixture of kerosene and the light petroleum known as benzine, or a mixture of

kerosene and some of the product made by this invention.

"One hundred kilos. of ordinary kerosene of specific gravity 0.83-0.87 are mixed with half a kilo. of caustic potash and twenty kilos. of benzole of specific gravity 0.9. After having been vigorously stirred the mixture is allowed to rest for about six hours, whereupon it will be found to have a specific gravity below 0.8 and to contain as a sediment the matter separated from the kerosene by the caustic potash.

"If this mixture were distilled it would separate into its components, but if there be first added to it a material rich in carbon (like a gum or a resin) and



AT OLYMPIA. The arrangement of the rear springs of the Cooper cars. The springs can be adjusted for light or heavy loads so that the car may be comfortable whether empty or full.

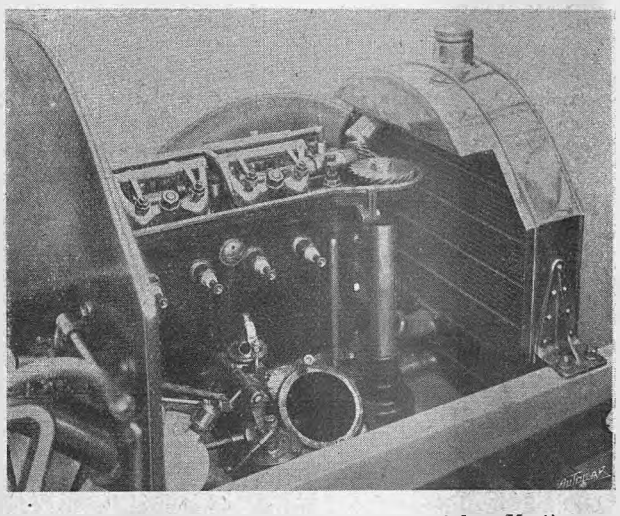
a nitro-compound (preferably picric acid) the liquid will distil uniformly.

"Accordingly, one kilo. of a common gum resin or waste amber is dissolved in one kilo. of light petroleum or benzole and one kilo. of picric acid in one kilo. of light petroleum or benzole; these two solutions are mixed and added to the mixture of hydrocarbons. The solutions may be added separately, but if so the solution of the gum resin should be added first, as otherwise the resin is apt to be precipitated.

"The mixture is then subjected in known manner to a purification by means of sulphuric acid, followed by clarification by a solution of a salt such as Glauber's salt or Epsom salts.

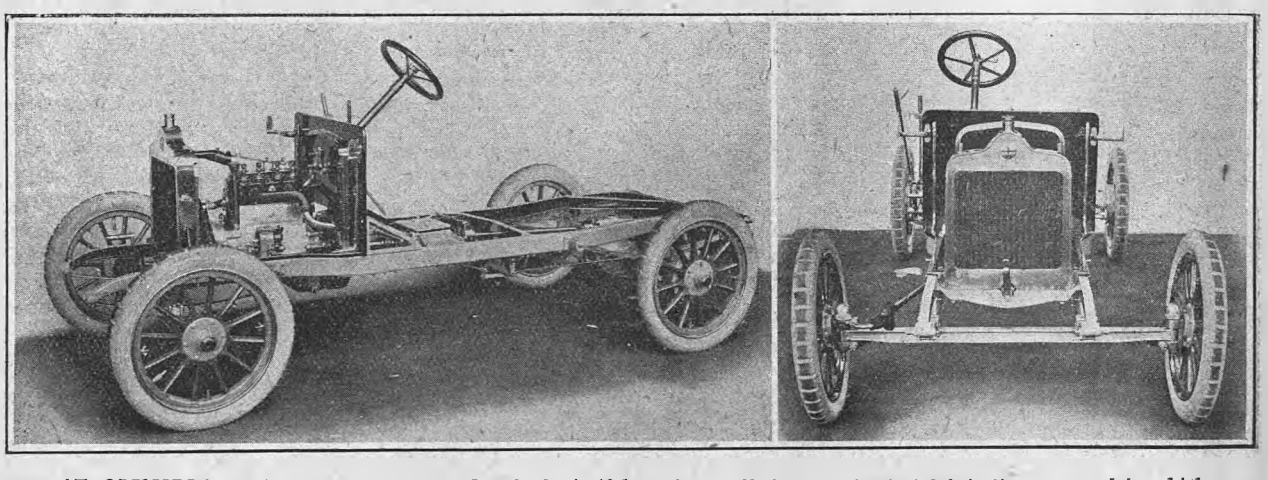
"When the mixture has stood for about twenty-four hours the oil is separated and mixed with about one hundred grams of amyl-acetate to disguise the odour. Finally, the oil is fractionally distilled to separate the lighter portion, which is suitable as a fuel for internal combustion engines, from the heavier portion, which is useful as a solvent for fats and as a substitute for turpentine.

"The fractional distillation is not accompanied by a separation of the liquid into its original components. For instance, if the lighter hydrocarbon originally added to the heavier one amounted to twenty per cent. of the latter, the proportion of the final mixture which will distil at the temperature of distillation of the said lighter hydrocarbon will be forty per cent. of the original heavier hydrocarbon. In practice what distils below 250° C. may be used as a fuel for internal combustion engines."



AT OLYMPIA. The engine of the 10-12 h.p. Martini car showing the overhead valves with aluminium dust cover removed.

The large percentage of successes achieved by the Legal Department of the Automobile Association in connection with the Free Legal Defence Scheme has shown conclusively that it supplies a real need, and that, as was anticipated, formerly a large number of cases in which a good defence existed were allowed to go undefended, on account of the trouble and expense involved in retaining the services of a solicitor. Such cases are now strenuously fought by the Legal Department without expense to members, the result being that in a large number in instances the summonses are dismissed.

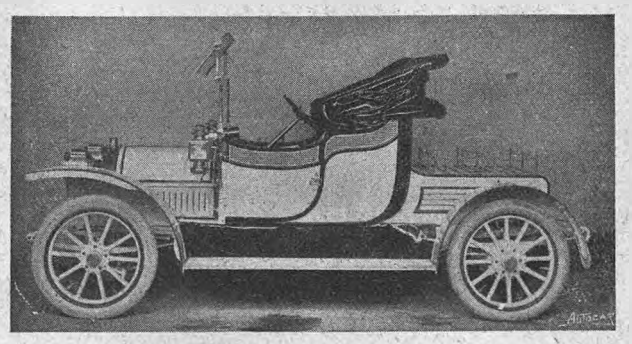


AT OLYMPIA. The new small model Standard of 12 h.p., four cylinders, mechanical lubrication, worm drive, high ground clearance, and 4ft. 8in. track.

Small Car Talk. By Runabout.

Universally Jointed Clutchshafts.

AMONGST the optional items in a specification I doubt if any is quite so vital as a universal joint between the gear box and the engine. The provision of such a joint has only come into general use in recent years, and amongst cheap cars especially it is still comparatively uncommon; above all, it is most seldom encountered on the small and inexpensive cars beloved of those for whom this column is intended to cater. If we look at a 9ft. chassis with no universal joint forward of the gear box we shall find a block of mechanism about 4ft. 6in. in length, with a perfect little host of shafts contained in it. Each shaft has been designed and assembled so that it may be laid either parallel or at right angles to all the other shafts, and the whole system of bearings and lubrication is merely the expression of the engineer's intention that these shafts shall remain in these relations to each other. This 4ft. 6in. block of mechanism is then taken on the road and subjected to treatment which might have been specially designed with a view to destroying alignment. One wheel is driven over a stone or turf kerb, bumped over obstacles, dropped in potholes, etc., while the other wheel runs smoothly on the flat. The springs continually endeavour to compensate the series of shocks, but in actual practice do little more than damp and soften them. In process of time the main frame becomes twisted and strained, the underframe (if the chassis possess a cradle) takes a separate set of its own, or the engine hangers and its very crank case lose exact truth and alignment. Two portions of the mechanism, being compact, solid and well braced, retain their *individual* alignment, but even on the most perfect chassis they can hardly maintain *relative* alignment for ever, or, indeed, for long. These two portions, of course, are the engine and the gear box. They are coupled together by the flywheel, clutch cone, and clutchshaft *viâ* the main front bearing of the gear box. If the engine and gear box lose their exact relative alignment the clutch cone gets askew in relation to the flywheel and the clutchshaft gets askew across the gear box bearing. As an immediate consequence the clutch fails to register truly, and gets "fierce," as well it may, and the maltreated rear bearing of the clutchshaft begins to wear, resulting in plentiful lubricant leakages, wear of the gear pinions, noise, rattle, screeching, and backlash. This whole gamut of evils is put out of sight and possibility by a well-designed double universal joint between the engine and gear box, which joint can absorb the whole stress of the mal-alignment. Such a joint is obviously, therefore, a most desirable possession, and the proof lies in the universal experience that clutch and gear box troubles have been reduced by seventy-five per cent. since such joints became standard fitments on the more costly cars. It was pleasurable to notice at Olympia that the number of small cars provided with this detail is greatly on the increase. Failing a "universal" joint, with its power of absorbing the effects of frame torsion, it is, of course, essential to have a detachable, though rigid, coupling, so that the clutch can be lifted out for treatment without first removing the engine or gear box.



AT OLYMPIA. A smart 20 h.p. Stella two-seater shown by the Stella Motor Co.

Cleaning Unvarnished Grey Paint.

I notice that the popularity of *unvarnished* grey paint is becoming very popular on two-seaters, and a warning is necessary in this connection. One advantage of an unvarnished body is that if the owner be content with tolerable tidiness the car may be hastily and carelessly cleaned without ever looking really shabby. A varnished body has to be cleaned almost as delicately as silver filigree work, or it will look unspeakable. An unvarnished body does not look specially smart even when new, but it maintains its pristine appearance with less labour than a varnished sample. The weakness of the unvarnished body is that grease spots cannot be removed at all unless the cleansing is done very soon after the spots are made and some stronger solvent than water is used. Sometimes I allow my unvarnished grey paint to go a week or more without cleaning it down, and the mud and dust come off under hosing as easily as if they were freshly contracted. It is not so with grease. A dirty-handed mechanic left some greasy finger marks on the bonnet of my car, which were left untouched for a week, and even petrol would not shift them properly when at last I tackled them. Therefore when an unvarnished car is under professional treatment the wise owner will keep an eye on the machanics to see that they do not finger his coachwork, and if their grimy hands escape his vigilance he will set to work even at cockcrow with a can of petrol and remove the disfigurement.

An Advantage of Thermo-syphon Cooling.

One cannot laud a good thing overmuch, and as an owner limited to an unheated coachhouse, I have unearthed a new merit in thermo-syphon cooling. I have only to unscrew a single plug to be absolutely certain that my cooling system will drain itself bone dry. I remember several years ago the anxiety of keeping a car with pump circulation in a cold stable. There were three little drain taps to be opened, and two of them, by the way, were not averse to opening themselves whilst *en marche*. Even when each of this little trio had ceased its last gurgling trickle I knew there were several odious little pockets where an ounce or two of water might lurk undrained, so I had to start the engine and run it with the taps open for a few revolutions till it had pumped out the last drops. Now I unscrew a single plug and flee from the stable. At my next outing I simply loop a hosepipe into the radiator nozzle for a minute or two while I wander round with the oil gun or fill the petrol tank.

Below Zero.

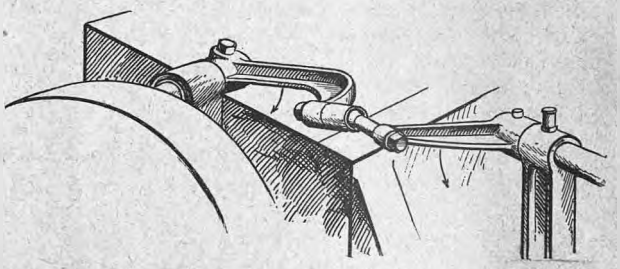
For the following tip many thanks to a medico motorist. When the thermometer is below zero and the steering wheel bites like a red hot poker, the warmest covering for the hands consists of lined woollen gloves next the skin, overlaid by a pair of fingerless tramwayman's mitts with leather palms.

A New Car Lighting Dynamo.

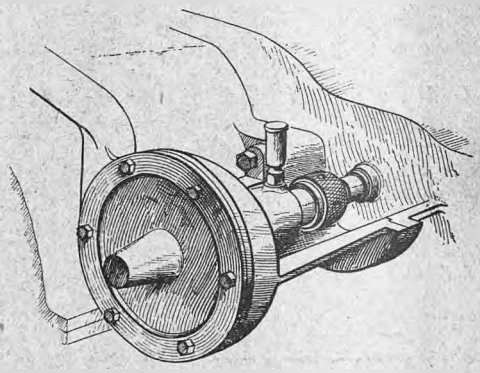
Efficient in Unskilled Hands.

AMONG the many electrical specialities shown by Messrs. Peto and Radford, of Hatton Garden, E.C., at Olympia was a novelty which deserves special attention, the more so on account of the method that this firm have of testing their productions. They do not believe in trying them under the guidance of skilled supervision, but make a point of handing them over to perform in the hands of totally untechnical drivers, and the new dynamo which they are bringing out for car lighting is no exception to this rule. In fact, its present perfection has been evolved in this manner by the elimination of all weak points that show themselves under unskilled (one might almost say unfair) treatment. This little dynamo, which in appearance strongly reminds us of the Appold machine, is very compact, and has been designed not only for car lighting, but for charging accumulators on the car as the vehicle travels along. It will generate ten to twelve volts at six ampères as a maximum, and is shunt wound. A particularly ingenious adaptation of the centrifugal governor mechanism is to be found in the method of regulation, for the machine is driven by a belt pulley, and this pulley is secured to the armature-shaft by means of fibre-lined external brake blocks, held on by helical springs that are so adjusted as to allow the block to fly off when the speed exceeds the maximum permissible. With this dynamo a complete equipment, including a very neat switchboard, is supplied, and not only is the speed controllable, but a solenoid device automatically cuts off the charging current when the ampères rise above the safe limit. The switchboards, which are fitted with very neat voltmeters and ampèremeters, can be made to any size and to meet any individual lighting requirements, and a feature is the very neat combination selector switch that has just been designed, so that either of the accumulators can be charged or used for lighting, or the dynamo itself can be used to supply the current direct to the lamps. Another most ingenious contrivance in connection with their lighting system is the lamp holder contact that the firm have just brought out. This can be described by saying that it is made on the same principle as a glove or purse fastener, the metallic parts of which are thoroughly well insulated all round to meet the requirements of detachable lamps, which can be readily and frequently removed without fear of damage.

Trophies won during 1909 by Vauxhall cars. They include the O'Gorman trophy, the Henry Edmunds trophy, the Goff challenge cup, and a R.A.C. 2,000 miles trial cup.



AT OLYMPIA. The peculiar joint between the hand lever and the propeller-shaft brake on the Calthorpe car.



AT OLYMPIA. The method of securing the water pump to the distribution gear casing on the engine of the Clement car.

Motorists in Conference.—Motor Union Meeting.

Honorary correspondents of the Motor Union from all parts of the kingdom met the Executive Committee of the Union in conference at the Hotel Great Central, London, on Wednesday last week. In the past the Union has derived much of its strength from the loyal co-operation of honorary workers, and they had been invited to meet the Executive Committee on this occasion in order that a statement might be made with regard to the developments which are proposed, and in order that an opportunity might be afforded to discuss the work and policy of the Union.

There was a thoroughly representative gathering of motorists, the attendance being larger than at any Motor Union meeting held this year. Earlier in the day at a special meeting, the General Committee unanimously resolved upon certain important steps which the growth of the Motor Union has rendered possible. These include:

(1.) The formation of an aviation section.
(2.) A scheme for the free legal defence of members.
(3.) The appointment of a travelling organiser.
(4.) The removal of the headquarters of the Union to larger and more convenient offices.

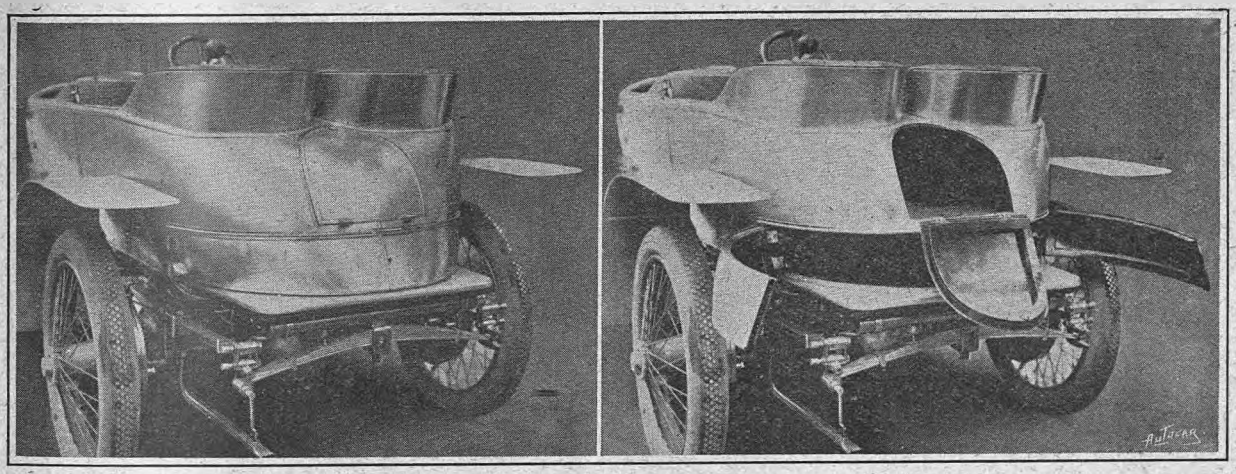
The enthusiasm with which the proposals were received augurs well for the future of the Union.

A French View of Olympia.

Paris and London Compared as the Motor Car Market of the World.

THE unqualified success of the Olympia Show would seem to offer good justification of the growing belief prevalent in France that manufacturers made a serious mistake in suppressing the Paris Salon. As Olympia has proved indispensable for the British trade, is not the Salon equally necessary for the development of business in France? It should be remembered that the Salon was not abandoned for purely business reasons, although it must be confessed that the actual volume of orders taken was always disappointing. The Salon was temporarily suppressed because, firstly, it was organised by the A.C.F. as a means of popularising the motor car and, incidentally, replenishing its own coffers, the makers themselves being regarded merely as "accessories" to this great event; secondly, the lavish decorations carried out by the organising committee necessitated an increasing expense which put a heavier burden every year upon the exhibitors; thirdly, visitors expected to see something new at each Salon, and makers were obliged to effect changes in their chassis, even if they were not sacrificing quality were obviously greatly appreciated. This is an instance of the practical character of the English mind. In Paris the public would not look so much after simplicity. They would expect to find all sorts of little ingenious devices, whether they be of any practical value or not, and if a manufacturer does not modify his chassis he must at all events add something to make it interesting, such, for example, as more or less cumbrous and costly self-starters which are spoken of during the Salon and forgotten afterwards. There are many French chassis which are very simple, but this is because they are built principally for the English market, and it is not too much to say that if these makers exhibited exclusively in Paris and did not look after English requirements they would not have succeeded in bringing out such cheap and practical types of vehicles.

The Olympia Show has proved that an exhibition can be a business success without introducing changes in the general lines of car design. It is perhaps doubtful whether similar business results would attend a



AT OLYMPIA. The aluminium flush sided body fitted to a Sheffield-Simplex chassis. The tool locker and spare tyre cupboard underneath are snugly arranged in the back portion of the body.

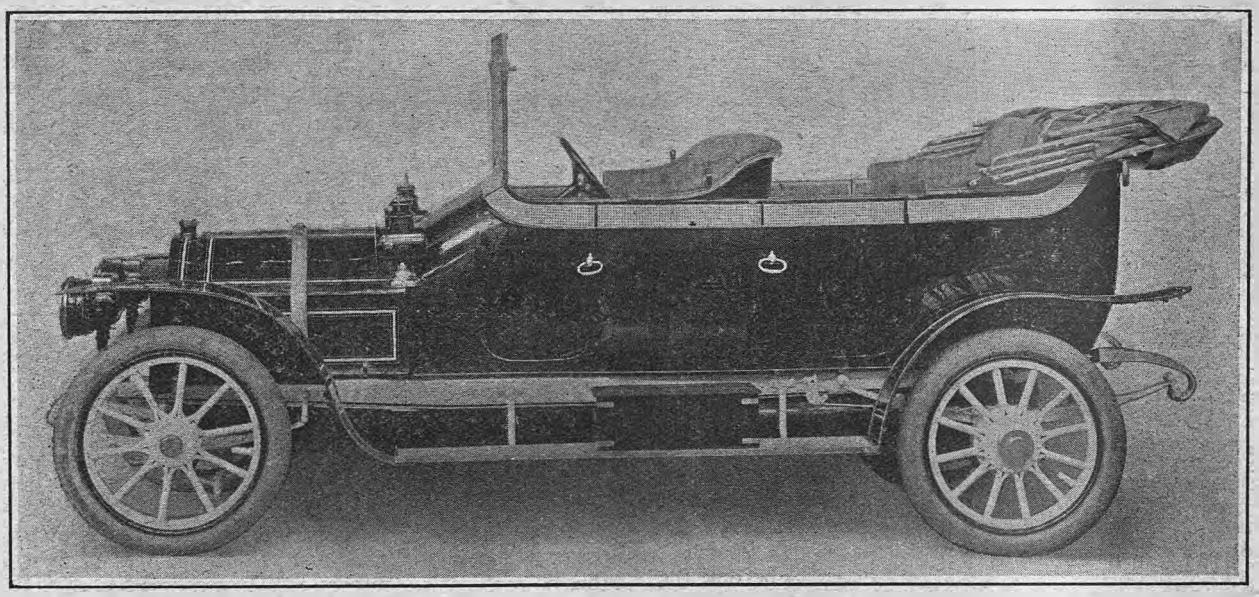
improvements, and thus a lot of extra work had to be done in designing and building new chassis that more often than not were adversely criticised, and thus temporarily weakened the reputation of those firms who, against their will, were forced to make changes; fourthly, while being unable to satisfy the public craving for novelty, the leading makers were playing into the hands of new firms, who were able, by the Salon, to get a footing on the market, and thus add to the already severe competition. This last consideration has always influenced the big makers in their attitude towards the Salon.

The idea that a show cannot be a success unless it is full of novelty has been dispelled by the Olympia Exhibition. It is true that there was plenty of novelty at Olympia to make it interesting, but these novelties were outside the general run of standard chassis. Two-cycle engines, sliding valve engines, hydraulic transmission, and the like proved interesting for those who had some technical knowledge of the motor car, but the general public were more impressed with the simplicity of chassis, and the efforts of makers to reduce the number of parts and cheapen manufacture without show of this kind in France. There is not the same demand for cars as on this side, and people are not in the habit of going to shows and placing orders there and then. Even agents are extremely cautious about giving out orders. If a Paris show had to rely upon a home demand it would never have that healthy tone which was observable at Olympia, and to be a success Paris would have to attract foreign agents and private buyers, principally English. It may, however, be taken for granted that an English agent or buyer will never more purchase cars at a Paris show, because in future French makers will be obliged to exhibit in London, and if other foreign agents get into the habit of visiting the London show, as they did during the past week, the business in French cars will be done mainly through Olympia. London promises, indeed, to become the motor mart of the world. This diversion of business from Paris to London would not perhaps offer serious consequences for the French trade if makers were assured of maintaining their position on the English market. Some of them are doing well with their English trade, and it does not matter to them in what way they get the orders, so long as they

receive them, but during their visit to Olympia they had impressions of future developments of a highly disturbing character. Everywhere there were hints of tariff reform, which would practically shut out foreign cars, and as this is becoming more than a bare possibility, the French makers will have to consider what measures they can take for their protection.

Already it is being suggested that French firms who do a large business with England should put down factories in this country under French management and with French hands for the manufacture of cars. This is regarded as indispensable by Faroux, the well-known writer, who has been airing his opinions upon English workshop methods. During the few days of the show he left behind him the heavy fogs in Paris, when day was turned into night, and found himself in the less foggy atmosphere of London, and marvelled that people should be able to live amidst such surroundings. He was allowed to visit a motor factory, and discovered that the workmen were lazy, drunkards, and mentally demoralised, the technical staff was incapable, and the management bad. Therefore the English factories were quite unable to turn out good chassis. If this gentleman were not regarded as the leading writer on automobile matters, and his lucubrations were not accepted by our French friends in perfect faith, this silly libel on English workmanship and factory practice could be passed unnoticed, but it must be referred to as indicating the lengths to which the French papers are going in attempting to depreciate the English motor industry. There has, indeed, been scarcely any reference to English cars in the accounts published in French papers, unless it be of a deprecatory character.

The experience of the London show has convinced the French trade that something must be done to retrieve their position. Even when the Salon was suppressed Olympia loomed up as a menace, and a meeting was subsequently held in Paris between the representatives of French makers and delegates from the Society of Motor Manufacturers and Traders with a view of seeing whether an arrangement could not be come to for holding a show alternately in London and Paris. The delegates of the Society of Motor Manufacturers and Traders did not object to this in principle, but they refused to come to any understanding at the time, because it had already been decided to hold the Olympia Show in 1910. It is probable that the different makers' associations in France will form another body similar to the Society of Motor Manufacturers and Traders, and organise shows themselves upon the lines of Olympia, though whether the shows will be held alternately or concurrently is a matter that cannot be decided until after another conference with the delegates of the English society. For the moment, all that can be said is that the French trade is coming to see the necessity of holding shows. They are necessary because the trade must know the trend of business, and this can only be done by observing the preferences of the public. Makers must supply what buyers want, and the requirements of the latter are more easily ascertained at shows.



AT OLYMPIA. A good example of a high-sided open touring body shown on a Hobson car. The finish is black with white lines and cane relief work, presenting a very smart appearance, apart from the excellent "lines" of the body.

Before the Wokingham County Bench last week, Frank Newton, of Brooklands record fame, was summoned for driving at a dangerous speed at Sonning. Forty miles an hour was alleged against him by the police, but defendant stated that he held the world's record for driving till the other day, and denied that his speed was dangerous. The case was dismissed, the Chairman remarking that, though the magistrates were of opinion that defendant was travelling at an excessive speed, they did not consider there was any danger, as he was such a skilful driver.

For the second annual dinner of the Royal Automobile and Associated Clubs, on Thursday, 3rd February, the Connaught Rooms, Freemasons' Hall, Kingsway, W.C., have been engaged. The first dinner, held in January of the present year, was so well attended that, in spite of the fact that the largest available hall was used, numbers of members and associates who wished to participate were unable to do so. An even greater reunion of the automobilists of the United Kingdom is promised on the occasion of the approaching function next February.

Motor Union Notes.

(Communicated by the Secretary.)

Important Announcements.

Members will learn with pleasure that, owing to the increased support which the Union has this year received from the individual motorist, certain important developments have been rendered possible, and the committee feel that the increase in the revenue of the Union justifies them in further extending the work of the Union and increasing the benefits which are already offered to members. The lines upon which development should proceed have for some time been engaging the most careful consideration of the committee, and the following important steps have already been decided upon:

(1.) The formation of an aviation section.
(2.) A scheme for the free legal defence of members.
(3.) The appointment of a travelling organiser.
(4.) The removal of the headquarters of the Union to larger and more convenient offices.

It is not possible to publish here complete details, but the following are the essential features of the new developments, particulars of which will be published at an early date.

An Aviation Section.

The objects of the Motor Union include the encouragement of the use of mechanically propelled vehicles in the air. So large a proportion of the Union's members already take a practical interest in aeroplanes, and so many applications for advice and assistance in regard to aviation have been received, that the executive of the Union has for some time been considering the best course to adopt in order to meet its members' requirements.

Whilst the matter was under consideration a suggestion was made that the Aeroplane Club should be incorporated by the Motor Union and should form the nucleus of an aviation section. This step has been decided upon. The Aeroplane Club is an active organisation with a numerous membership interested in the problems of aviation. It has been agreed between the Union and the Aeroplane Club that the members of the latter shall become *ipso facto* members of the Union, while, on the other hand, the members of the Union will be entitled, without further subscription, to the assistance given and benefits secured by the Aviation Committee.

The Aviation Committee of the Union will consist of the committee of the Aeroplane Club, with the addition of Motor Union representatives. The present secretary of the Aeroplane Club will be added to the staff of the Motor Union, and will be specially concerned with the aviation department.

The Union has no intention of seeking to become the controlling body in the aviation movement. It will throw the weight of its influence in favour of the demand for the formation of a central controlling body, representative of all authorities and organisations interested in aviation, to deal solely with the control of the sport.

Free Legal Defence.

The Legal Department of the Union has always been one of the most important and hard-worked of the many branches of the Union's activities. The number of calls for advice and assistance prove the extent to which it is appreciated by the membership. Over sixty cases were dealt with during last month alone.

It has been decided, however, to extend the existing advantages of legal advice and assistance, so as to include FREE LEGAL DEFENCE. The following are the essential features of the scheme that has been adopted:

(1.) Every individual member of the Union shall be entitled to the professional services of one of the appointed solicitors of the Union, free, once every twelve months, if he should require such services for the purpose of defending him against any charge brought against him under Section 1 (Common Danger) or Section 9 (Speed Limit) of the Motor Car Act.

(2.) For an additional payment of 10s. 6d. a member can extend these benefits to his paid driver, if the member is on the car or if the driver is engaged on his master's business at the time of the alleged offence.

These new legal benefits will come into operation on the 1st of January.

The above scheme will be without prejudice to the existing rights of the holders of badges under the badge scheme. Under its provisions a member charged with an offence when driving a car carrying the Motor Union badge, and instructing one of the solicitors recommended by the Union in his defence, is entitled to have refunded to him one-half of his legal expenses, provided that the Legal Cases Committee of the Union is satisfied that he did not in fact commit the offence with which he was charged.

The existing legal benefits will also be continued:

(*a*) Free legal advice.
(*b*) Assistance in appeals to Quarter Sessions against convictions by magistrates, when in the opinion of the Legal Committee such appeals are justified and there is reasonable possibility of success.
(*c*) Support in appeals to the Divisional Courts on points of law, when such appeals appear desirable in the interests of motorists generally.

Travelling Organiser.

The objects of the committee in appointing a travelling organiser were sufficiently explained in a previous issue. It is believed that his appointment will considerably strengthen the Union's organisation, and, by bringing the executive into closer touch with motorists in the provinces, will be of real advantage to the members themselves. The committee have, as was to be expected, received a large number of applications for the position thus created. The difficult task of selecting the most suitable applicant has not yet been completed, but the name of the gentleman appointed will be published in next week's issue.

New Premises.

The rapid growth of the membership of the Union has rendered necessary the removal of the headquarters to larger and more convenient offices. The formation of an aviation section to the Union is an additional reason for this step. It has, therefore, been decided to remove to Caxton House, Westminster. This building constitutes one of the finest recently erected in London. The Union has secured the first floor in the west wing, and it is being fitted so as to enable the Union to increase the staff which is now required to cope adequately with the work which devolves upon it. More commodious members' and committee rooms will be provided, and the Touring, Legal, Engineering, Motor Cycle, Aviation, and other Departments of the Union will be more conveniently arranged for members.

In making these important forward movements the Union is relying on the continued and increased support of individual motorists. It is obvious that the additional expenditure involved will be very considerable, but the Union hopes that the increase in its membership will more than correspond, and still further developments in the near future are contemplated. Exisiting members are, therefore, invited to do their part to increase the influence of the Union and to secure for it the support of any motoring friends who have not yet become members.

The Motor Union. Chairman: W. Joynson Hicks, M.P.
Albemarle Street, London, W. "Speedway, London." 9090 Gerrard.

The Torbinia Transmission.

An Ingenious Attempt to partially Eliminate the Gear Box.

AN interesting form of hydraulic transmission has just been introduced by the Motor Mercantile Association, Ltd., 67, Duke Street, Grosvenor Square, W., and was shown fitted to a car at Olympia. Referring to fig. 1, in the drum C connected with the propeller-shaft, which is filled with water, is a box C_1 keyed on to a projection of the engine-shaft B. This box carries the blades A, which can be moved about the bosses E of the carrier similarly to the usual type of reversible propeller used in motor marine work. The lower end of each blade is provided with a plate G, into which a radial slot is cut. In the latter a pin engages which is attached to the sliding box B_2 and capable of being moved longitudinally by means of the inner shaft B_1, which receives the necessary movement through the pin H and the outer sliding sleeve H_1. The drum C is provided with radial ribs, the shape of which has been determined by experiment to facilitate the absorption of most of the kinetic energy of the liquid. Shown in the illustration the blades are in the position of maximum drive, which occurs when the angle they form approaches 180°. As they approach a position parallel to one another there is naturally more and more slip, until they reach an edge-on position, when practically no water is acted upon, for the blades are but ⅛in. thick in the middle, and are tapered to a very thin edge. In this position the neutral is obtained. Immediately after the blades have been turned to a maximum driving position the engine-shaft and propeller-shaft are mechanically locked by means of a cast-iron rim J bolted to the drum C, in the internal periphery of which three grooves are cut. Two shoes resting on a carrier J_1 rigidly attached to the projection of the engine-shaft B are made to expand and contract by means of right and left-hand screws shown in fig. 2. Fixed on each screw spindle is a short lever J_2, which operates the shoes by means of the adjustable rod K and the sleeve H_1. The movement of this sleeve is controlled by the pedal, the spring L tending simultaneously to bring the blades in line and to lock the whole mechanism. As the pedal which takes the place of the usual clutch pedal is pressed down it releases first this internal expanding clutch, and then moves the blades notch by notch by means of the quadrant M until the neutral position or edge-on position of the blades is attained. Fig. 2 shows clearly the simplicity of the locking clutch. The wear on the shoes is very slight, since the necessary slipping is effected by the blades.

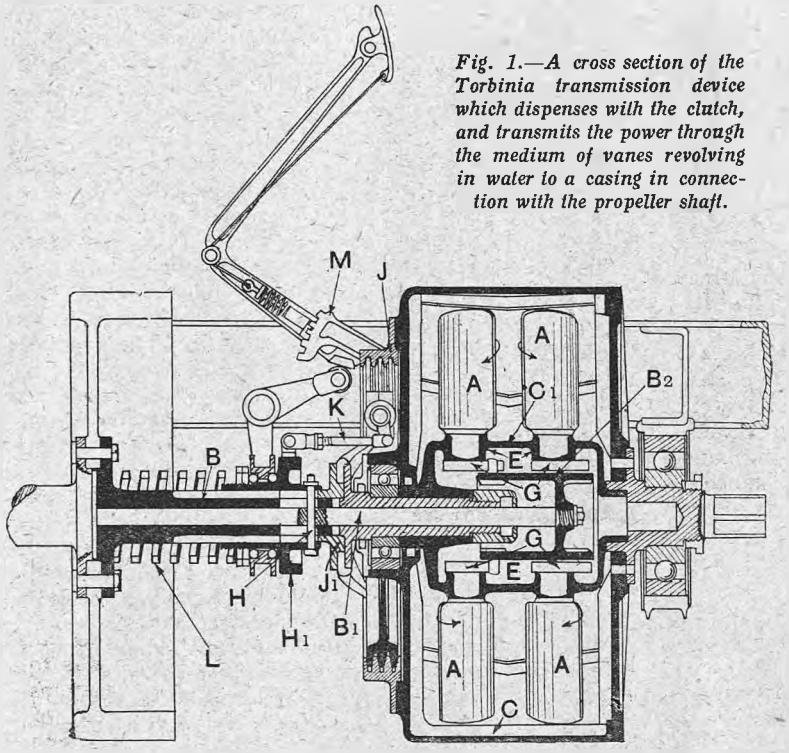


Fig. 1.—A cross section of the Torbinia transmission device which dispenses with the clutch, and transmits the power through the medium of vanes revolving in water to a casing in connection with the propeller shaft.

A, movable vanes
B, driving sleeve bolted to engine flywheel
B1, sliding rod operating vanes
B2, sleeve
C, vanes on interior periphery of outer casing
C1, inner casing carrying vanes
E, bosses on C in which vanes are free to rotate
G, slotted plates
H, cross coupling pin
H1, sliding sleeve
J, J1, J2, K, operating levers, and brake device for locking solid
L, spring which maintains the locking device in action
M, quadrant

Besides the Torbinia device just described a two-speed epicyclic gear is fitted, controlled by a side lever, to provide, firstly, an emergency gear for exceptional hills and, secondly, a reverse.

By means of a transmission of this kind the flexibility of the engine is enormously increased, or rather apparently increased, without there being any necessity to employ a motor of high power. It enables a car to glide gradually under way with a silky motion on top speed, and provides sufficient flexibility to allow the reverse pedal to be applied while the car is travelling forward, resulting in bringing it to a standstill, and immediately after it has been brought to rest to propel it backwards. The gentle way in which the drive is taken up and the manner in which the engine shocks are absorbed were adequately proved by a short drive which we were given in a Hillman-Coatalen landaulet fitted with the Torbinia transmission. In actual practice we found the control, though strange at first, quite easy to acquire after a few minutes' practice.

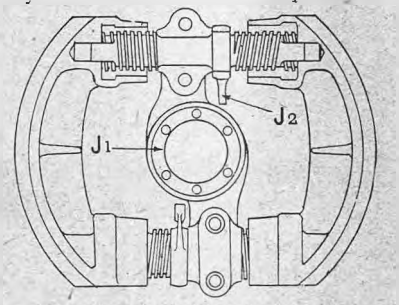


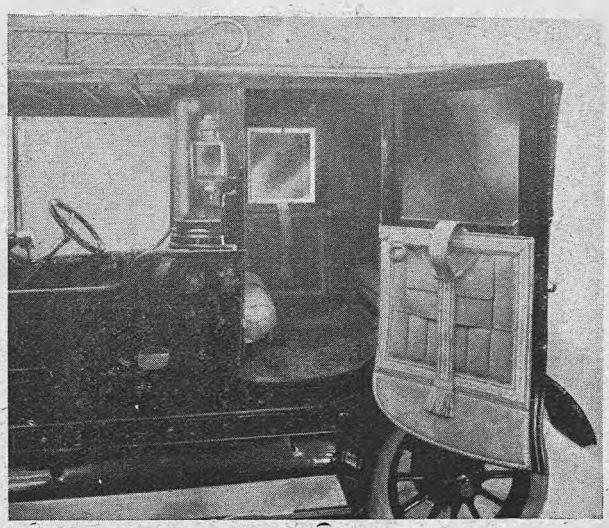
Fig. 2.—The locking device of the Torbinia transmission.

It is the intention of the Bournemouth Corporation to celebrate the centenary of the town by holding an automobile and aeronautical carnival next summer, probably in July.

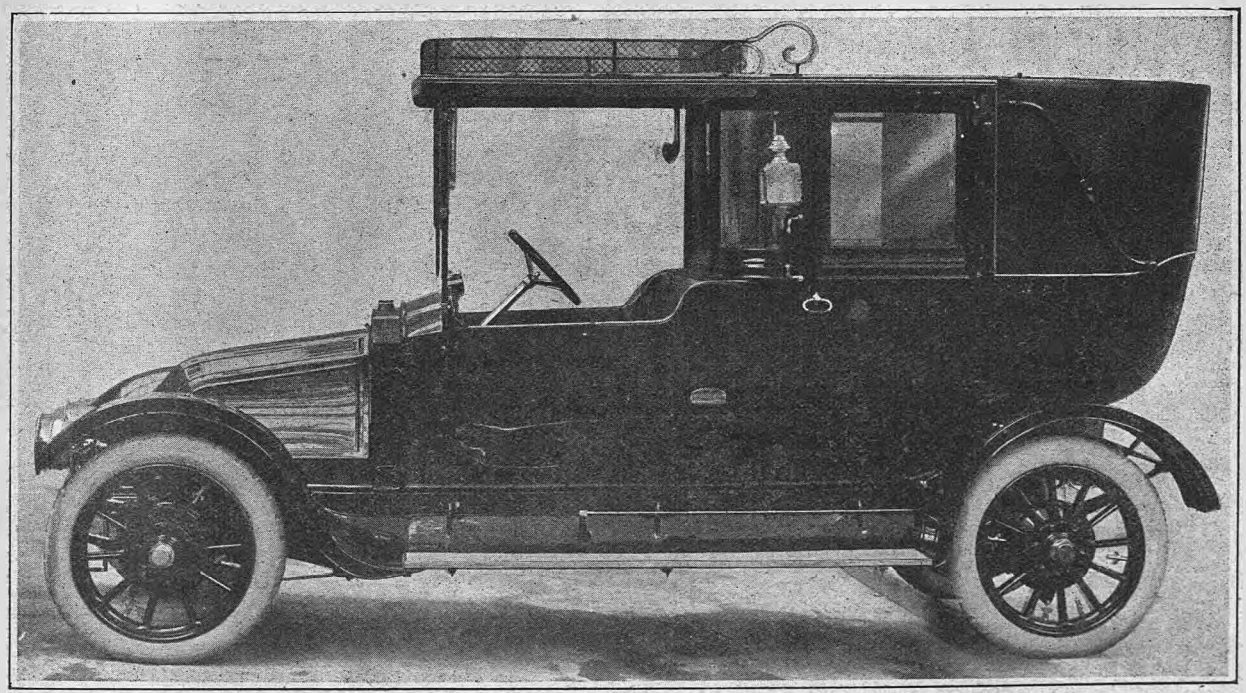
On the Road.

The Joys of Winter Motoring.

ABOUT this period of the year one generally comes across, somewhere or other, an article on "How to Lay Up the Car for the Winter." I never read it, because it shows a very poor spirit, and because I sadly look on those whom it concerns as butterflies of the most evanescent type. Let us think what it means. To lay a car up in the winter; to be dependent on the slow, uncertain, insanitary horse; never to feel the dry, hard roads crackle under one's tyres or the swish of the good red mud as it flies out of the puddles from beneath the car. The idea is melancholy. Long before there were motors I used to find a certain amount of pleasure in driving horses along beneath blue skies and leafy trees, but never can I remember taking the least pleasure in being so drawn along greasy roads, under wet and lowering skies, always invariably chilled to the bone. Imagine ten miles of Watling Street or the Great North Road in a dog-cart and the teeth of the wind. Wet gloves, wet reins, and a horse that grew ever wearier and ever more slow. And then compare it with a car provided with a screen and hood. Why, I would far sooner lay up my car in the summer and, to the delight of my fellow-creatures, cease to be a dust-raiser than I would deprive myself of its use just when it is most invaluable. Motor driving in the winter has a delight all its own, which does not entirely consist in the feeling that you are doing something other people are not. To begin with, police traps are not so frequent, and, secondly, hotels are much more pleased to see you than when you are only one of a crowd. And there are many other different things to note. As I came up from the South through Oxford the other day, just out of Banbury I discovered a chauffeur sitting in a car in a hedge. With him were two grooms, and none of the three were very far removed from tears. I stopped my car to sympathise and help. "I presume," said I, "that the accident was the result of a skid?" The chauffeur shook his head and said it was the result of teaching "ammychoors." Whereat the two grooms hung their heads. Now, I have not the faintest idea which of the two did the deed, whether they belonged to the owner of the car, or whether they were merely occasional passengers; but I could not help thinking that a greasy, steep, curving hill was a stupid place for any expert to teach the young idea how to drive his master's car. By the mercy of Providence they had missed a milestone, shaved a large rock, and come to rest with a crumpled



The 15.9 h.p. Arrol-Johnston landaulet has ample seating for four.



AT OLYMPIA. The 15.9 h.p. Arrol-Johnston double landaulet; which excited a large amount of favourable comment by reason of its excellent design and finish. This body has the same special back contour as the open car.

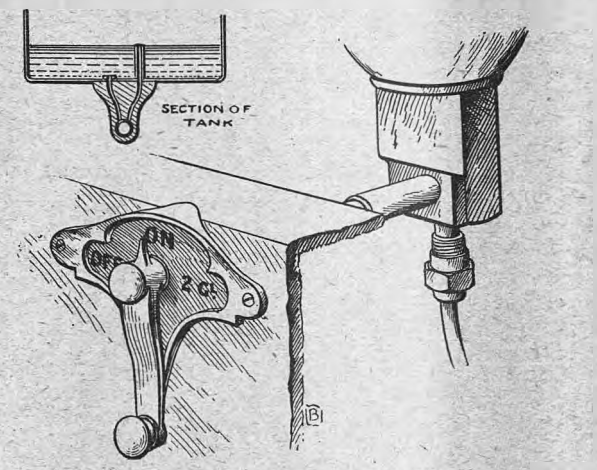
mudguard and a front wheel against a large elm. In spite of a ten-yard margin of grass between the hedge and the road, the car had taken no heed of it, and on my arrival I found the rightful chauffeur spinning the back wheels in the mud in a vain endeavour to drive out backwards. I pointed out to him that he could go on doing that all day to no purpose, and suggested that a little concerted action might be more effectual. Which it was, and, once more on the hard high road, he bent back the mudguard and set off for Banbury. I was careful to tell him to go to Mr. Wrench's garage there and get an expert to tell him if his front wheels were still in truth, but I think his idea was to get home and get rid of all traces of the mishap. Now, without casting any reflections on this particular man, I cannot help remarking on the large number of accidents that occur to cars which, having delivered their owners at the meet, are sent home empty or with the groom who brought the mount out. In Leicestershire the procession of big vacant cars is a terror from the pace and absence of consideration with which they are driven, as I know to my cost, and I have distinct recollections in the Meynell country of one large Delaunay-Belleville spending several hours in a ditch owing to the too social habits of its driver when his day's work was over at eleven o'clock in the morning.

Other objects which are more common on the road in the winter than at other times are beasts, and I do not remember having come across more for years than I did the other day. I may have been unlucky as regards markets, or perhaps the trade in store cattle is at its busiest in the Midlands this time of the year. Anyhow, the roads were thronged with them, and the only things that showed less intelligence than they did were the people in charge of them. One of my acquaintances once ran into a herd of black and white bullocks in the moonlight under some trees, and he swears that his big lamps absolutely refused to distinguish them at all. This seems to be an example of unprotective mimicry, and calls to mind the case of a friend of mine who is a Surrey magistrate and a non-motorist. He complained to me that the thousands of cars that came down his road either splash him with mud or cover him with dust to such an extent that he had all his clothes made of a material that does not show either the one or the other. "But now," says he, "the motorists can hardly distinguish me at all, and my plight is worse than ever!" I have advised him, therefore, to buy a car, and I am not without hope but that he will.

In the gloaming—which I take to be the time between the hour when lamps ought to be lit and when they must be—this time of year has a special danger of its own. I allude to patches of loose metal which look exactly like masses of fresh-fallen leaves. It is absolutely sinful the way some local authorities leave stretches of unrolled stones quite unmarked all night when a little better management would easily prevent it. Oxfordshire is a notable offender, and I swore to myself the other night that if I came across any more of them I would take out my licences elsewhere. Ten pounds worth of damage can easily be done by an unthinking driver, and motorists are apparently regarded by roadmen either as absolute nonentities or folk it is their amusement to annoy. One of these days we shall have our revenge, because county surveyors will all learn their work, and cars will not have to follow the same tracks. Then the roads will never require mending, and consequently the roadmenders will have to look elsewhere for a job.

There was a new type of screen or shelter at the Show which should make winter motoring even more luxurious than ever. I refer to the Auster wind shield that fastens on to the back of the front seat and can be drawn—with rug attached—out to stay immediately in front of the people in the back of the car. If you do not need it, it can be folded over to become a table, and I have met with no more excellent idea that makes for comfort for a very long time.

A new suggestion has occurred to me that I commend to the notice of gentlemen likely to suffer this coming year from electioneering. I read in the papers of one view that the House of Lords has murdered the Budget, and in those of the opposite kind that the same House is thinking of asking the advice of the people on what to do with the same much-discussed measure. With the result that a General Election seems a certainty. Now, all manner of politicians will ask their followers for motors, and a keen supporter's car will probably go through a fortnight of very hard work. My idea is this. Many of our bodies are the pride of our hearts, and the state of the varnish and upholstery is our daily joy. Undoubtedly the carrying of half a dozen voters short distances, waiting amidst crowds for hours together in every kind of weather, and other incidents



AT OLYMPIA. The three-way cock fitted to the petrol tank of the Arrol-Johnston cars, the object of which is to enable the driver to refrain from using, without knowing that he is doing so, the last two gallons of petrol in the tank. The inset shows a section of tank and the arrangement of the two outlets.

connected with the "determination of the people's will," are very bad things for *carrosserie*. So I advise those likely to be so troubled to go to the local coachbuilder, let him take off their spotless bodywork, and borrow from him either a works body or a temporary makeshift, which would be more roomy, less delicate, and a great deal more suitable. Be one ever so careful, it will be impossible to prevent enthusiasts sitting on the mudguards, standing on the cushions, or writing in the mud and the dust at the back. I can call to mind a man who allowed his machine to be covered with posters, little bits of which are still to be seen.

And the topic of elections calls to mind that then is the time to get your fancied candidate to promise not to be aggressive to motors when he gets in. But get him to put his promise in writing, so that he cannot afterwards dismiss a frigid and calculated statement as a terminological inexactitude.

You will notice how already the shadows of politics is darkening even these non-committal pages.

OWEN JOHN.

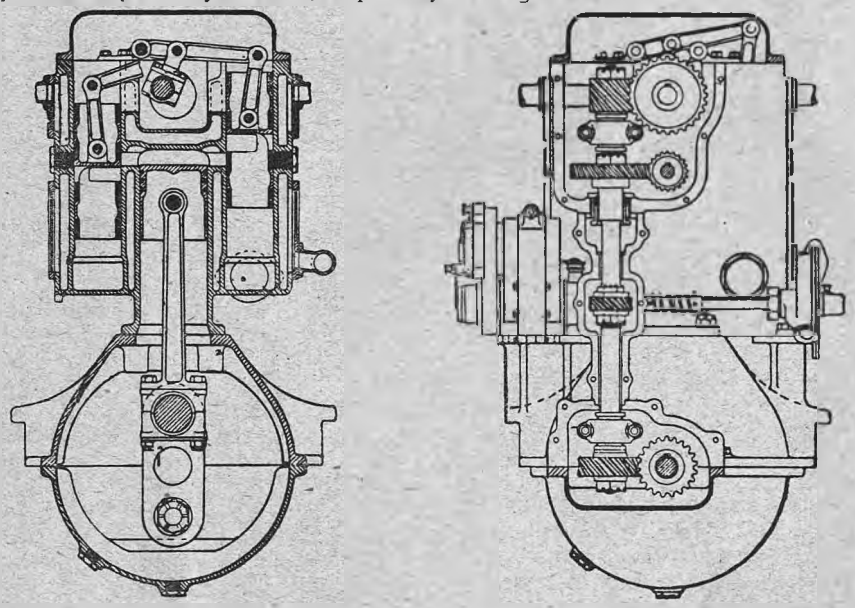
Small Cars at Olympia.

By Runabout.

WHEN the Editor of *The Autocar* first provided this weekly outlet for my harmless prattle I credited myself with a large province, for in those days the £300 15 h.p. chassis was contemptuously regarded as about the smallest sort of car a self-respecting motorist could own. But nowadays much smaller cars occupy the lion's share of the floor space at Olympia and more than the lion's share of expert attention. They have been rechristened "light cars," and a "small" car has shrunk considerably in power and price. The old time 60 h.p. car seems to be disappearing, the 20 h.p. type is coming to be regarded as a standard, a 12-15 h.p. is a "light" car, and really I don't know if anything with more than one cylinder is generally regarded as a "small" car in these days of standardised and compressed efficiency.

Nevertheless, I feel that I am governor of a small province of some forty or fifty chassis, including quite a little fleet of very honest and refined cars. There is very little in the way of absolute novelty to chronicle, and what there is is perhaps chiefly of the freak order; but this is not to deny the presence of real and marked advance. Certain refinements, both essential and luxurious, are sliding down the scale—are gradually being projected from the heavier and more costly classes to within the poor man's range. I should say the last year or two have been specially delightful to the man of very restricted means, because they have brought three very valuable items of specification within his reach, viz., speed, dual ignition, and detachable wheels. For £200 or so a really fast voiturette is now obtainable, dual ignition is a standard on all self-respecting small cars (with a very few exceptions, on which a good magneto and a half-compression starting device represent a vast advance on the old coil and accumulator system with a crude contact breaker), and I regard detachable wheels as the most important of our recent blessings. If there is one thing that robs a motor run of all pleasure it is roadside tyre repairs when no chauffeur is present to do the hot and dirty work, and hundreds of motorists would rather part with their magnetos than with their detachable wheels or rims.

The small car's broad specification remains otherwise unchanged: *monobloc* engine of one, two, or four cylinders; three speeds and reverse, with propeller-shaft drive; leather cone or single-plate clutch; dual ignition; splash lubrication with a drip indicator, or, alternatively, a semi-mechanical device, in which a small base pump forces lubricant around a restricted system, including some form of dashboard indicator. After each maker has fixed the above bare essentials of his design he distributes the surplus cost in various ways. The more sane and conscientious makers apply it to excellence of workmanship and detail design. They fit a host of greasers, incorporate two or three large and well-cased universal joints in the transmission, supply petrol gauges, turn vital details down from the solid steel bar, instead of assembling them from a handful of bits with keys and nuts and pins, bolt their back axle casings together, instead of driving or shrinking the sleeves on to stub tubes forming part of the central casing, with rivets to hold all tight. Others prefer to make the car more ostentatious. They supply a horse-power that is out of all proportion to the price. Their crankshafts are assembled, not turned down from the solid. Their back axles are of cheap steel, manufactured in the quickest and cheapest way, their bought accessories, especially the ignition details and the carburetter, are inexpensive, and so forth. There is more show of value and less honest brain and labour in their chassis. A few, however, hit the happy mean between these extremes very prettily.



AT OLYMPIA. A cross section and end view of the Bingham piston valve engine shown on the Bentall stand. See pages 818 and 869 of "The Autocar" last week.

There was an example of a "unit" car at Olympia from which, I hazard, the clutch could not be dismounted and replaced in much less than twenty-four hours. Some makers have abandoned the "unit" system (very wisely, in my opinion), and include two, or even three, excellently designed and fully protected universal joints in the transmission—one between clutch and gears and two abaft the gear box.

A Brief Review.

Coming to the consideration of individual cars, the new 7 h.p. Austin-Swift has been welcomed with such a chorus of sincere and well-earned praise that I have no hesitation in saying it was one of the best small cars in the show. It is a splendid example of the transmission scheme elaborated above, its three universal joints giving promise of prolonged silence and efficiency. It has an immense back axle, with flanged and bolted on sleeves; each moving part has its greaser; the short leaves of all four springs are properly clipped to the longer top leaves; all four brakes are on the rear hubs, ensuring full brake power in the rare event of a transmission failure; the

undershield is closely fitted to join the bonnet, where many cars of thrice the price show evil gaps, and it extends right back well to the rear of the gear box —truly a most welcome and praiseworthy design. The next trio of A.'s I must dismiss briefly as already familiar, viz., the 10 h.p. Adams, Alldays, and Argyll; but the Adams has a half-compression addition for starting its big engine, the Alldays has four speeds, and the Argyll people took a long start of the trade in silent two-cylinder engines, the late Mr. Govan defying experts to detect how many cylinders his 10 h.p. engine possessed. The Albruna, if really more a "light" than a "small" car, possesses one fitting which all scuttle dashed small cars require in the shape of a pedal-operated force pump for auxiliary lubrication. I wish my own car had such a device. The locking device of its gate change is also very pretty.

The 15-18 h.p. Bedford is an imposing little car, which has the individualities of overhead valves and epicyclic gearing. The Briton semi-racer remains much "as you were." It is one of the few cars in any class that have properly cased in rear mudguards. Compelled by its speed capacities to retain pump circulation of the cooling water, it is one of the few cheap cars so fitted with ample provision for lubricating the pump.

The Chenard-Walcker evinces no alterations in a well thought out chassis with four speeds and dual rear axle, with separate driving and weight bearing shafts. The Cadillac offers the same extraordinary refined and complete specification as in 1908. Of the Clyde no naked chassis was available; it retains the thwartship engine, with single chain drive and back axle gear box.

Amongst the D.'s both Darracq and De Dion are already familiar. The 14-16 h.p. Darracq is a veritable Triton among the minnows. A light car in specification, it is only a small car in price, and will make many of us renegades, especially as it bristles with good points which many a £300 to £400 chassis cannot surpass. The 8 h.p. De Dion, of long and blessed memory, appears for the first time with the usual type of live axle, fitted in the interests of silence. Knowing how silent this car was with automatic inlet valves and cardan drive, I venture to say that with the new live axle and mechanical valves it will prove a very silent single-cylinder car.

The D.F.P. is a most promising new arrival. Its triangular torque-plus-radius member, with the apex butting up against the back of the gear box, looks really good. In addition, it can claim a *monobloc* four-cylinder engine, thermo cooled, and an ingenious and original clutch. I saw the Delage car perform wonders in the hilly districts covered by the last A.C.U. trials, and I admire the details of its design and construction. It has colossal tubing on its thermo system, its valve stems are cased in, it owns forced lubrication *viâ* a hollow crankshaft, Claudel carburetter, flanged and bolted axle sleeves, petrol gauge, ample under apron, two good universal joints, etc.

The Gregoire small car was one of the first to offer us a full specification at a poor man's price, and what other small cars offer for the first time this car has provided for two or three years. It is among the few miniature chassis possessing a multiple jet carburetter (a Zenith) and perfect foot brake adjustment.

Of the 8 h.p. Humber I need hardly speak, having already referred to a thousand-mile Scottish tour on a 1909 model. Reynolds Jackson offers an enormous range of small cars, all cheap and mostly very speedy. The combined frame and body pressed out of one sheet of steel on one model is most interesting.

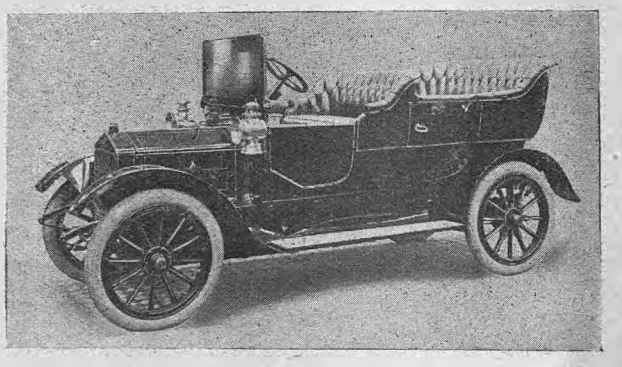
On the Phœnix stand the main attraction was the new version of the 8 h.p. with longer frame, more comfortable body, and three-speed sliding gear and chains. The one fault of the old 8 h.p. was its lack of a third speed. The new edition retains the old simplicity and economical running, dispenses with a pit (everything being accessible from above), and no car makes a stronger appeal to the owner-driver class.

The small Rileys remain unaltered, save that magneto ignition is at last standard. I can thoroughly recommend the vibrationless 90° engine from much personal experience. I infinitely prefer it to a vertical two-cylinder, while the unique gear box is the easiest on the road for changing purposes. The Rovers have long since established themselves in the first class, and evince small alteration. I particularly liked the placing of the side lever; on many cars it works in a draught gap, but on the new Rover it emerges from a sort of shelf high up on the side door, so that draughtiness is avoided.

The Sizaire stand smote the eye with a card bearing a list of thirty-one improvements, amongst which I noted an excellent foot brake adjustment, while the combination of 10 mm. longer stroke and a light steel piston should render this swift little vehicle even more efficient than of yore. The 8 h.p. Thames is one of the few really novel additions to the list. I suppose no one has a right to hold forth upon friction disc drive who has not wrestled long with faulty design on the road, but an infinitely variable gear is certainly ideal for a small car, and this sample appeared to me to be most substantially constructed. All the thrusts seem to be more than adequately taken up. The driving disc is nipped between two enormous driven discs, which should obviate undesirable slipping, and the bearings, thrust blocks, and springs were all of generous proportions.

The Waverley is a two-seater shown by Trier and Martin. It is of the speedy type, and if it is only half as good as the same makers' carburetter it is very cheap at the price. It has my favourite V engine, with 9 h.p. to propel a total weight of 6 cwt.

Any small car owners who contemplate promoting themselves into light car men must have lingered long at Olympia. In the £300-£400 class there was an embarrassing wealth of choice, such cars as the Straker-Squire being typical of those I have not described in minute detail. They offer a tremendous list of refinements as compared with the smaller cars, in conjunction with increased power and that slight access of weight and sturdiness which makes a car sit down tighter on rough roads.

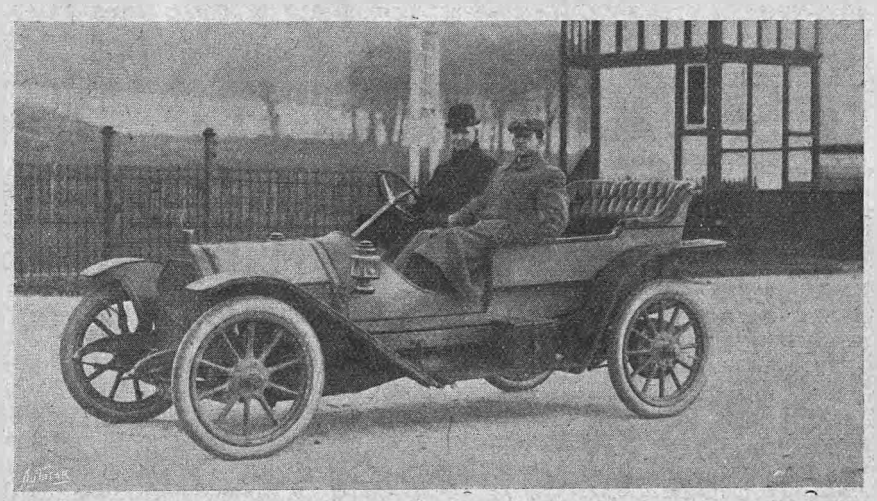


AT OLYMPIA. A 14 h.p. Alldays car with five-seated body and screen.

On the Track. By H. C. Lafone.

REALLY, retribution follows hard upon wrong doing. Only last week I had the temerity to burst into print about the stand decorations at Olympia, and instantly one of my fellow conspirators —I mean (ah-tish-oo) contributors—to *The Autocar's* pages more than hinted that I had been following Paulhan's lead and mixing my spirits. Then I happened to write last Friday that the ventilation at Olympia was much improved this year. And what was the (Ah-ah-ah; no! it's gone) result? Mark this; on that very fatal Friday, just when I was congratulating myself that I had finished my show work and spoofed the germs, these same bacilli (or germs; have it as you like) fell upon me and cast me down upon a bed of sickness, with what a medical practitioner would, no doubt, describe as a nasty nasal catarrh in the throat. On Friday night I heard the enemy's war cry, but on Saturday morning his hosts appeared to be tarrying somewhat, daunted for the time being by nauseous gargles and ammoniated quinine. So, taking advantage of the momentary respite, I journeyed to Brooklands, just to see that all was well with the track. On the course itself there was not much to be noted, so I toddled round to the aviation ground to observe how matters were progressing in that direction. I found three new hangars in process of erection, and an embryo aeroplane in the shed lately occupied by Paulhan's machine. The new arrival is a monoplane belonging to Mr. H. J. D. Astley, of motor racing fame. It appears to be somewhat of a mixture in design, some parts of it reminding me of a Blériot and others recalling Latham's Antoinette. The span of the main planes is about 26ft., and the length from nose to tail tip some 23ft. The main planes are rigidly fixed, and are provided with small ailerons, just behind their extremities, for maintaining lateral stability. The pilot sits in a boat-shaped body, and controls the ailerons and also the rudders for vertical and horizontal steering by means of two wheels, one in front and the other to the left of the aviator's seat. The under carriage of the monoplane is nicely sprung, and looks strong enough to resist rough usage. When I saw the machine Mr. Astley had not definitely decided on the engine which he would fit, but I was informed that he contemplated the purchase of a British motor somewhat on Gnome lines.

The three new sheds are already engaged, one of them having been taken by Sir George Abercromby, and the other two, also, I believe, by expert motor drivers. As to the flying ground itself, the work of clearing and levelling is getting on splendidly. Mr. Locke-King informed me that he thought there would be between 200 and 300 acres of smooth ground when all the available land had been prepared. There are, apparently, dozens of people who want to engage aeroplane sheds at Brooklands, and the extension of the hangar building operations is only a question of days. With the certainty of a couple of dozen aeroplanists flapping about at Weybridge the future prospects of the B.A.R.C. are rosy, and I shall not be surprised to hear before long that the club has decided to raise its membership subscription. At the present time the subscription is two guineas, the payment of which small sum gives a man, or woman, the right to use the track whenever he, or she, pleases, and to go over, at any time, and watch the aviators scuttling along the ground, soaring into the air, and (perhaps) falling into one or other of the various ponds which are dotted about the plain. As I have said, a person can join the club now for two guineas, but I should not care to guarantee membership to anyone after December 31st at less than five guineas. *Verb. sap.* Ah-tish-oo. *Where* is that ammoniated quinine?



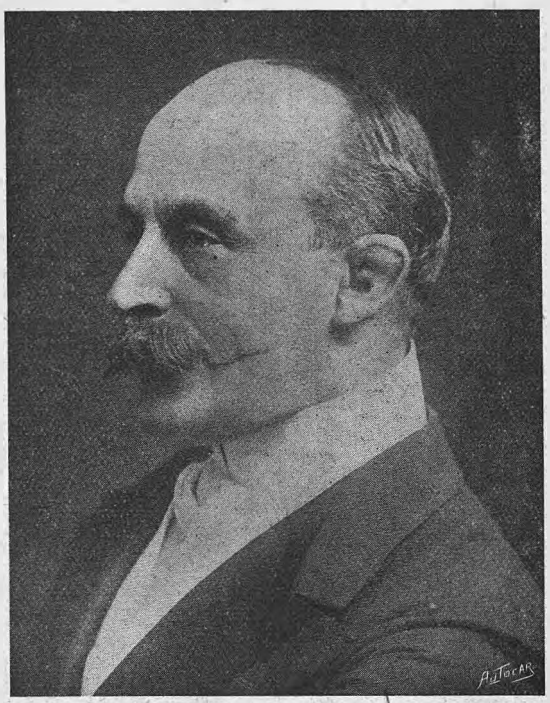
An American Importation. Last week a 30 h.p. Kessler made some acceleration tests with four up. It also attained 70 m.p.h. down the straight, and ascended the test hill at 31 m.p.h. on second speed.

A smart little body fitted by Messrs. Charles Grimshaw and Sons, Sunderland, to a 12 h.p. Metallurgique car. At the wheel is Miss Ellice Jeffreys, accompanied by her husband Mr. Ernest Sleath.

The value of a speedometer was again evidenced in a case which came before Mr. Lane, K.C., at the West London Police Court the other day. Mr. George Hine was summoned for exceeding the speed limit (26½ m.p.h. being alleged against him) in Holland Park Avenue, but he was able to prove that a speedometer fixed on his car did not register more than twenty miles per hour, and the case was dismissed.

The Majority of the Pneumatic Tyre.

A Memorable Celebration.



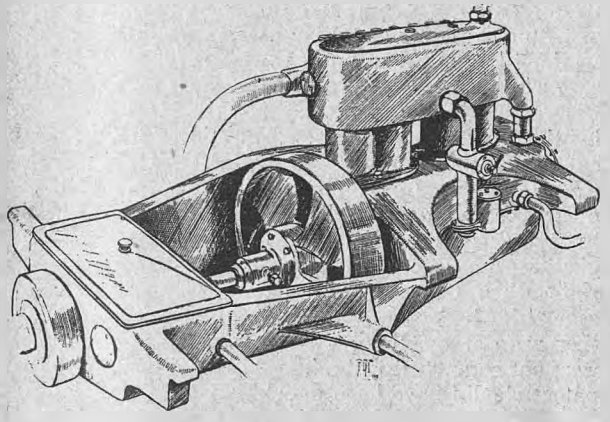
Mr. Harvey Du Cros, J.P.

THE cycling and motor world would indeed have been lacking in the proper cognisance of one of the, if not the, most important events in the history of the linked sports and industries had they not taken some steps to recognise the arrival of the pneumatic tyre at years of discretion. After all, there is only one way of celebrating such an occasion, at least to an Englishman, and a dinner—a banquet, indeed—of unusual magnitude and distinction was the result. The advent of the pneumatic tyre as a practical factor in locomotion took place at a cycle race meeting at Belfast in May of 1889, when, amidst howls of derision, it carried its rider to victory in each event in which he took part. Later Arthur Du Cros and T. L. Morris performed victoriously at the Oval in the Surrey meeting of 1890, whenceforward by all but one or two ultra-prejudiced individuals it was realised that, crude and exasperatingly puncturable and difficult of repair as it was, it had come to stay. In briefly chronicling the historic function which took place on Friday evening of last week at the Hotel Cecil, with H.S.H. Prince Francis of Teck in the chair, we do not propose to trace the history of the pneumatic tyre from its birth to the present day.

The response to the suggestion of the organising committee that the majority specially and Mr. Harvey Du Cros in particular should be honoured was so whole-hearted and enthusiastic that over four hundred guests were present on Friday night, representing the past and present head and front of the sport, the pastime, and the industry. Amongst those who supported His Serene Highness, and whose names have been intimately connected with one or other of the above-mentioned divisions were, first and foremost, J. B. Dunlop (who, as put by Mr. A. J. Walker, K.C., rediscovered the pneumatic tyre), F. W. Woods (the inventor of the Wood s valve), R. J. Mecredy (the high priest of the pneumatic tyre in its earliest days), R. W. Booth (whose business in Dublin formed part of the little old parent company), Harvey Du Cros (the discerner of value and possibility in the tyre), Arthur Du Cros (the hero of the Surrey meeting aforesaid), A. J. Walter, K.C. (concerned in all the early patent fights), R. W. Wallace, K.C., J. B. Purchase, Mr. Welch's solicitor, and H. Thompson Lyon. Also at the cross table were the Earl of Albemarle, Viscount Ingestre, Mons. Adolphe Clément, L. Lemoine, Sir Lambert Ormsby, Col. Bosworth, C. W. Hely, J.P., W. Tischbein, S. F. Edge, Montague Napier, Ed. Manville (S.M.M.T.), Sir Wm. Goff, A. Darracq, Courtauld Thomson (a son of *the* Thomson of 1846), A. Armitage, F. R. Simms, and Claude Johnson. The vice-chairs were occupied by C. Vernon Pugh, Albert Eadie, Albert Brown, Walter Phillips, J. C. Percy, Frank Bowden, J. H. Price, Charles Marston, E. A. Wilson, and F. W. Shorland. Also amongst those present were C. J. Thiselton, Fritz Adler, J. Lisle, J. R. Nisbet, E. Lisle, G. P. Mills, E. M. Mayes, F. Coleman, Walter White, H. Hobson, Warwick Wright, J. S. Critchley, C. G. Grey, F. Purchase, Captain Theo. Masui, Walter Dewis, T. H. Woollen, M. D. Rucker, A. J. Wilson, J. W. Stocks, J. S. Matthew, A. R. Atkey, S. D. Begbie, J. D. Siddeley, Harry J. Swindley *(The Autocar)*, A. Bednell, Percy Richardson, A. E. Crowdy, Frank Lanchester, E. Gascoine, J. E. Hutton, Ben Hinchcliffe, E. H. Lancaster, J. Newton, W. J. Peall, W. J. Harvey, W. Burman, Hamilton Barnsley, John V. Pugh, Dr. Percy Furnival, Sir Chas. Friswell, F. Guy Lewin, W. E. Singer, Chas. Jarrott, W. A. Turpin, W. M. Letts, Chas. Sangster, Harvey Du Cros, jun., J. Allday, Geo. Du Cros, W. Du Cros, Alf. Du Cros., F. B. Bale, Walter Hewitt, Harry Smith, J. S. Napier, H. G. Burford, D. McCabe, W. R. McTaggart, J. C. McCormick, E. J. O'Reilly, J. B. Dunlop, jun., André Godin, Harold Bowden, A. W. Gamage, H. Copping, W. Geo. Williams, J. S. Stafford, Horace Bell, J. H. Adams, J. Keele, H. J. Vane, S. H. Smith, H. J. Ball, Herbert Synyer, M. Fenton, Tom Norton, and R. McGregor.

After the loyal toasts, the toast of the evening, "The Pneumatic Tyre Industry," was proposed by Mr. A. J. Walter, K.C., who was ever in the thick of the legal fights which raged round the various pneumatic tyre patents some ten years or so ago. Mr. Walter pointed out that amongst the guests present were representatives of the R.A.C., the Society of Motor Manufacturers and Traders, the Cycle and Motor Trades Association, the Stanley Show, Ltd., the A.C. of France, the T.C.F., and the cycle and motor and allied trades of Great Britain, France, Germany, Holland, South Africa, Australia, and the Malay Straits. Mr. Walter then indulged the company with a sketch of the history of the pneumatic tyre since the year 1888, taking his hearers through the early stages when Mr. Dunlop's reinvention caught the eye of Harvey Du Cros and the fancy and faith of R. J. Mecredy. He gave statistics which spoke volumes for the progress of the invention, the huge possibilities and practicability of which Mr. Harvey Du Cros had been the earliest to perceive. Briefly, the figures were as follows: 1889, cycles, 300,000; 1909, 3,000,000. Approximate capital

investment, cycle making, cycle dealing, and allied trades at the present moment, £25,000,000; and capital value of the cycles in use, £25,000,000. Cyclists put no less than £17,000,000 per annum into circulation in this country; the wages paid were approximately £5,000,000, while about 1,000,000 people derived the whole or part of their income from work associated with cycle making. Those were British figures alone. With regard to pneumatic tyres on motors, England was the country of origin. After some further statistics with regard to industrial motor vehicles, and the suggestion that no less than £200,000,000 was invested in the motor industries of the world, Mr. Walter said the name of the inventor of an important device was often remembered, while that of the man who fostered the industry prompted by such device was forgotten when his contemporaries had passed away. The pneumatic tyre industry had resolved that this should not happen in the present circumstances, and in their name he asked Mr. Harvey Du Cros to accept the address signed by 850 representatives of Great Britain and her colonies, and of all the countries of Europe, as a small token of the regard and esteem of the motor and cycle industries. Monsieur Clément, representing the French guests, added his



AT OLYMPIA.—The arrangement of the Lancia engine and gear box. A peculiarity in design is apparent in the method of carrying a portion of the water inlet pipe through the casting of the crank case. The induction pipe passing between the centre pair of cylinders is another feature.

congratulations in his own gracious tongue, and announced amid cheers that the French Government had decided to confer the Cross of the Legion of Honour upon Mr. Harvey Du Cros.

The gold casket containing the address was then handed to the guest of the evening by H.S.H. Prince Francis of Teck. The address contained within ran as follows:

To Harvey Du Cros, Esq., J.P.

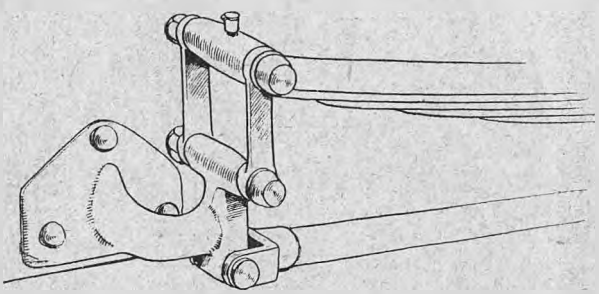
Your name, sir, and personality are so intimately bound up with the birth, progress, and success of the pneumatic tyre, that we desire, on this its twenty-first birthday, to offer you our heartiest thanks and congratulations.

Few of us to-day can realise the difficulties and prejudices which, in the early days, met you at every turn, but most of us know that it was your keen insight, sound judgment, and untiring energy, which, in spite of every obstacle, at last secured success.

It must be a source of never failing satisfaction to you that the child you so bravely nurtured has reached so vigorous a manhood.

It must also add greatly to your pleasure to feel that in founding what is now a great industry, no other trade has been crushed out of existence, but on the contrary, new sources of wealth and new occupations for countless workmen have been found.

We desire also to express to you our firm belief that in fostering, as you did, the infancy of the pneumatic tyre, you largely contributed to the rapid growth of the cycle and motor industry, and greatly assisted the raw rubber, cotton, and other allied trades, and thus added largely to



AT OLYMPIA. The radius rod and rear spring link bracket on the 1910 Delahaye cars.

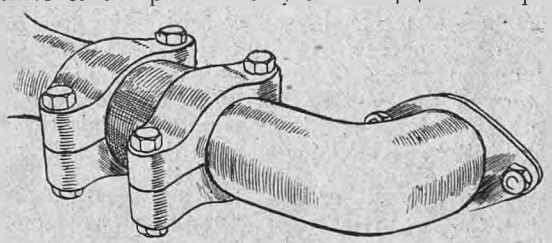
the sources of our national wealth and the wealth of other nations.

We fear that your strenuous and untiring labours have told somewhat upon even your immense reserve of strength, but we trust that ere long you may be restored to full health and vigour.

That you may long live to enjoy the fruits of a battle well and honourably fought, and that you may see the industry advance from success to success, is the earnest wish and hope of all the undersigned.

Upon rising to reply Mr. Harvey Du Cros was received with a storm of cheering, the volume of which was even surpassed when he first mentioned the name of J. B. Dunlop.

After most suitable acknowledgments of the terms of the address, the gift, and the great honour offered by the French Government, Mr. Harvey Du Cros made grateful reference to his medical advisers who had succeeded in getting their man up to his mark. We sincerely regret that space precludes our following Mr. Du Cros through the whole of his telling and interesting speech. At times emotion struggled with utterance, and it was hard for the night's hero to proceed, but the cheers which greeted his touching references to his pioneer comrades heartened him through his task. He said he felt deeply the presence of rivals in sport and business from across the sea, and regarded it as unselfish chivalrous testimony to the indisputable contribution of the United Kingdom to the great achievement of the homely bicycle and the magnificent motor car. Mr. Du Cros then became reminiscent of the very earliest days of the Dunlop pneumatic tyre, when the inventor, J. B. Dunlop, R. J. Mecredy, Robert Booth, and Fred Woods backed him so staunchly in the enterprise. The godfathers of the industry in France and Germany were there with them that evening, M. Clément and Herr Kleyer. Mr. Thomson, the inventor of the pneumatic tyre in 1846, which quite



AT OLYMPIA. The neat rubber joint clips on the 14-20 h.p. Sheffield-Simplex cars.

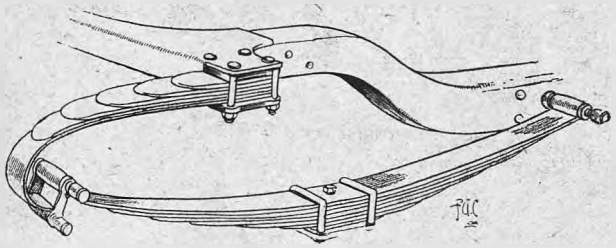
unwittingly had been re-invented in a perfectly practical form by J. B. Dunlop in 1888, was not with them, but his sons were, and they had presented him, Mr. Du Cros, with the original pneumatic tyre patent of 1846,

issued in Ireland, which was, curiously enough, the year of his own birth in that country. To J. B. Dunlop, however, accrued the never-dying credit of solving what the engineering world called the insoluble problem of putting compressed air in harness for the amelioration and perfection of road locomotion. They would never improve on it, and it was but justice to Dunlop that the industry should recognise that that mighty act was his.

"Our International Guests" fell from the eloquent lips of Julian Orde, R.A.C., and was responded to by the Chevalier René de Knyff, who read a reply in English. "The Prince" was most ably proposed by Vernon Pugh, and His Serene Highness's thanks brought this epoch celebrating function to a close.

The First Great Pneumatic Tyre Action at Law.

"In all the reminiscences concerning the re-incarnation of the pneumatic tyre," writes an old cyclist, who has become a motorist, "I find no reference to Mr. W. Golding, of Manchester, whose invention was adopted



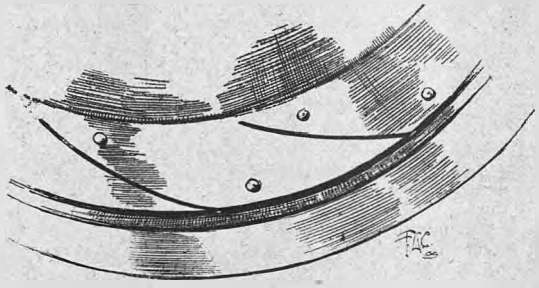
AT OLYMPIA. Construction of the rear part of frame on Lancia cars, showing method of securing the three-quarter elliptical springs to extensions of the pressed steel cross member.

by Messrs. Macintosh and Co., who were then proceeded against by the North British Rubber Co. for an infringement of Bartlett's patent of the Clincher tyre. This was the first great action fought in connection with pneumatic tyre patents, and, being something of a mechanic, a keen cyclist, and a man of leisure at the time, I sat the whole case out in Mr. Justice Romer's court. As matters are at the present day, it is almost ludicrous to recall the petrifying way in which counsel on both sides, judge, and witnesses floundered in connection with this case. Their nomenclature was never stable for a moment, the terms rim, felloe, tyre, band, etc., being bandied from one to the other without any clear definition of any sort. To those of some mechanical knowledge the effect and the result were lamentable. From the outset I felt, and there were many with me, that the North British Rubber Co. should not have succeeded, and that Golding's method of retaining a cover in a rim by inflation was as remote from that of Bartlett's as the poles are asunder. I am only writing from memory, but I think I am right when I say that Bartlett's tyre or tread was a thick ribbon of rubber bent over in the form of a domed arch set into a wedged shaped rim, and held therein by the pressure of a constrained, that is, a fabric-wrapped, inner tube pressing the outer sides of the arch against the inwardly inclined sides of the rim. And I believe I am right when I say that the Bartlett strip or ribbon of rubber could not be retained in the wedge-shaped rim if an extensible inner tube were used, but that always after a certain amount of inflation the pressure of such a tube against the inner dome of the arch was too much for the friction on the rim sides, and the rubber tread or ribbon was blown out of the rim. On the other hand, Golding's cover was as like the inflation-retained cycle or motor car cover of to-day as matters little, and was retained by the extension of the inner tube by the pressure within forcing the feet of the cover down on to the base of the rim and the ears into the channels formed by the overturned flanges. The times were, I fear, out of joint for Golding, and Messrs. Macintosh and Co., failing to foresee the gigantic scope of the industry, feared, or were disinclined, to put the question to further test. Had they appealed, matters might have worn a different aspect to-day. But I think I am right when I say that all men who listened to that case, who had some knowledge of pneumatic tyres as they were at the time, who were not lawyers, or who were not concerned with either side, felt that Golding's patent should have been upheld. I know I thought so and felt very strongly on the matter at the time. But the Law thought differently, and Golding with Macintosh went down. I noticed a Golding as present at the Majority Banquet. Could that have been *the* Golding? If so he was passed over in silence!"

"A Record of Motor Racing."

H.S.H. Prince Francis of Teck in the preface that he has contributed to this work, which is issued under the authority of the Royal Automobile Club, gives the reason for the Club's action in publishing the book. He writes: "It is suggested to the committee of the Club that records of the great races of the past ought to be collected and preserved for future generations as the Club's contribution to the history of the development of the motor vehicle of the present day," and he goes on to explain that Mr. Gerald Rose's collection of records appeared to be so complete and accurate that it was decided to publish it with the Club's authority.

Starting with the competition planned by M. Fossier, of the *Vélocipède*, in 1887, the work carefully covers the whole field of motor racing, devoting special care to the earlier events, the history of which is more difficult to trace than that of the events since the growth of the technical press of the movement. The historical chapters are fifteen in number, and each one after the first chronicles the races of a particular year. In other words, each year from 1895 to 1908 is treated in a separate chapter, with its own tabular matter and illustrations. "The Timing of Motor Races" and "The Mechanical Details of the More Important Cars" are subjects treated in additional chapters at the end of the volume, and there are appendices on the Gordon-Bennett Cup conditions, the Kaiser-Preis regulations, and metrical equivalents.

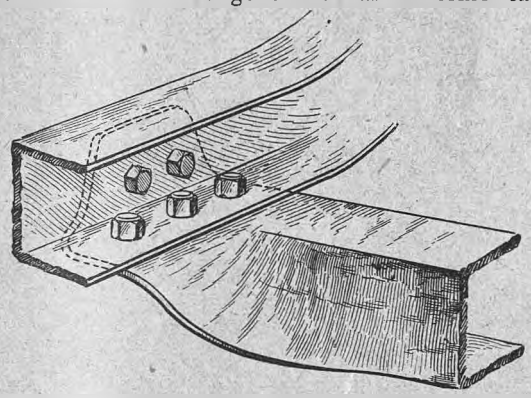


AT OLYMPIA. The design and construction of the pressed steel clutch of the Stella cars. The flange of the male portion is split, as shown, to ensure an easy and gradual "take up."

Improved Engine Practice.

The Development of the Petrol Engine as Evidenced at Olympia. By A.M.I.A.E.

THE engine practice initiated in the 1909 models may be said to have reached its logical development in the cars for 1910. Engine simplicity and efficiency were the notable features of last year's productions, and the exhibition just closed shows a very great advance on these lines. The writer is indeed inclined to think that the advance in the first of these features has gone too far in some cases,



AT OLYMPIA. The 12-16 h.p. and 16-20 h.p. Wolseley. Method of joining longitudinal member (carrying engine) to cross member of chassis.

although the matter is admittedly one for discussion. It must always be remembered that in motor engineering it is sometimes necessary to accept a compromise between a number of factors. At times it is necessary to sacrifice efficiency to simplicity, other times accessibility must be put before simplicity, and in some cases efficiency must come before all these.

The modern tendencies are towards obtaining the utmost power from every cubic inch of cylinder capacity, and the results achieved in this direction lately are really remarkable. Cars of 12 h.p. by R.A.C. rating now frequently develop from 20 to 30 h.p. on the brake, are very much more flexible than cars of twice the power a few years ago, and are capable of the highest speeds ever necessary for touring in this country. To attain this end piston and engine speeds have been increased, but, despite efficient lubrication and light reciprocating parts, the life of these engines can hardly be so long as that of the earlier, slower running types.

Lubrication of High-speed Engines.

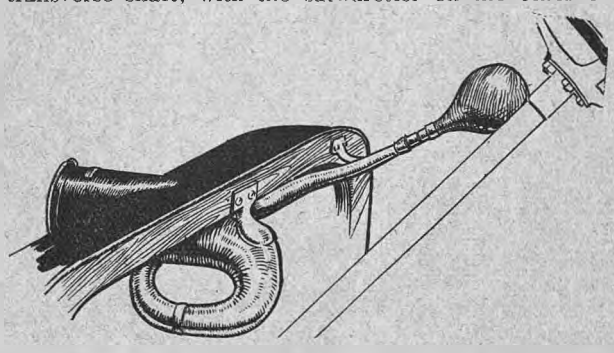
The smaller dimensions made possible by the higher speeds do not carry with them any increase in the comparative area of the bearing surfaces. Certainly at the high speed the load on the bearings is lightened, but friction will increase very much more rapidly should the lubrication become ineffective than with the older and slower engine. The modern engine gives little warning of any failure of the oil supply, so that a very reliable as well as efficient lubrication system is indeed essential. At present constant level sumps, troughs under the big ends, pump feed to dashboard drips, etc., are deemed excellent practice, and they are so if the very highest speeds are not approached. Engine speed is, then, limited by lubrication, and for extremely high speeds the best method appears to be positive force feed. By this I mean feeding of the oil from a sump to the main bearings at a pressure of perhaps 40 lbs. to the inch, drilled crankshaft, gudgeon pins, and connecting rods conveying the oil throughout to the moving parts. Such a system prevents any metallic contact at the bearings, and wear is consequently almost eliminated. A few firms use this system at the present time, and indications are not wanting that many more will be using it in the near future. This means a further increase in engine speed being permissible, so that next year, while the maximum engine speeds will have increased but little, the average will have gone up considerably. When the highest practicable pressure for the oil feed is reached, engine speeds will cease to go higher.

As regards the details of lubrication systems present and future, designers seem to incline towards a pump in the crank case, with channels drilled or cast in the chamber sides, thus eliminating pipe connections. An indicator to show instantly any failure of the pump is imperative, and almost without exception this is now appreciated, some very ingenious devices being employed for the purpose.

Simplicity Carried to Excess.

Some of my readers may wonder how simplicity can be carried too far, but to my mind an instance of this is evident in the increasing practice of casting induction and exhaust passages within the monobloc casting. With the monobloc engine I have no fault to find; in fact, I think the casting of four cylinders and the top half of the crank case in one, as is now done in some instances, is excellent practice, making for lightness and accuracy, as well as cheapness, but I do think that the cleaner appearance gained by including exhaust and inlet passages in the casting is not conducive to efficiency. A T-shaped induction pipe and an entirely outside ribbed exhaust chamber do not greatly complicate appearances under the bonnet, and certainly prevent loss of power by reason of tortuous passages.

Apparent simplicity, which is often attained by the sacrifice of accessibility, cannot be too strongly condemned. The placing of carburetter, magneto, and pump low down in the frame may look neat, but that is all that can be said in favour of the practice. Magneto and pump on one side or in front with a transverse shaft, with the carburetter on the other or



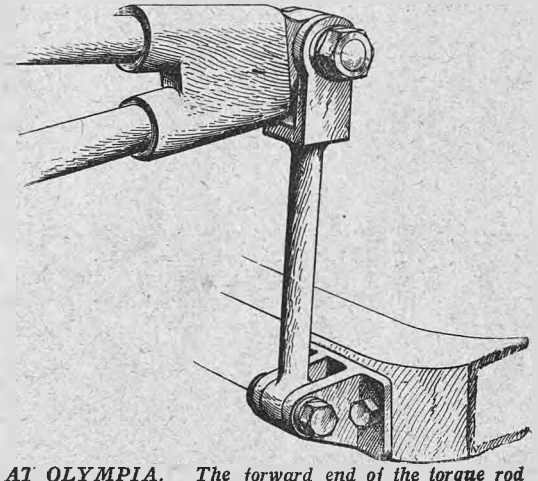
AT OLYMPIA. Dashboard horn shown on the Austin car. This is very neat, for the horn is, as it should be, a part of the car.

valve side, is the neatest and most popular design with the usual type of bonnet. There is a growing inclination towards thermo-syphon cooling, which undoubtedly is an advance, for this system provides to some degree an automatic temperature regulation which pump circulation cannot. Certainly there is a slight increase in weight, for pipes must be of larger diameter, and slightly more water is necessary; but, on the other hand, no power is absorbed, and

the average pump takes more driving than may be imagined.

The one drawback to natural circulation is that a good head of water above the cylinders is essential. To obtain the necessary rise with a forward radiator necessitates a compromise between a high and ugly bonnet or else a low and inaccessible engine.

Enclosed valve springs are almost universal on high grade cars, and as the covers are made easily detachable the practice is a good one, as it adds to the simple appearance and cleanliness of the engine, and does not interfere with accessibility.

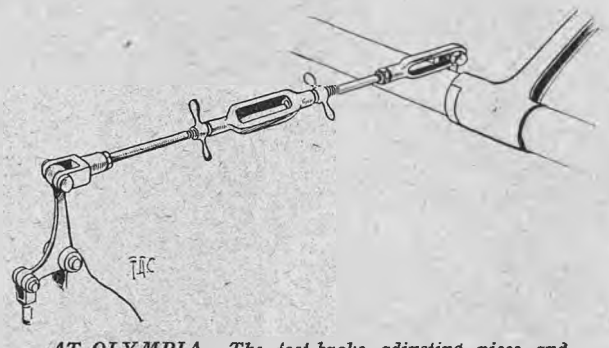


AT OLYMPIA. The forward end of the torque rod on the Straker-Squire.

Whereas silence was formerly a quality confined to the engines of a few firms, it is now the aim of every designer, and to this end fibre tappet pads, and in some cases dashpots and silencing springs, are being adopted. The half-time gears, pump, and magneto drives, once commonly run bare, are now without exception enclosed in oiltight casings, and it seems possible that helically cut wheels will soon become universal for all engine gearing.

Detail Improvement.

One of the most troublesome of the less vital parts of a car has generally been the fan drive, and to overcome this gear driven fans are being employed, and in many cases the fan is dispensed with and a vaned flywheel substituted. Where the belt is retained it is



AT OLYMPIA. The foot-brake adjusting piece and locking wing nuts on the Chenard-Walcker cars.

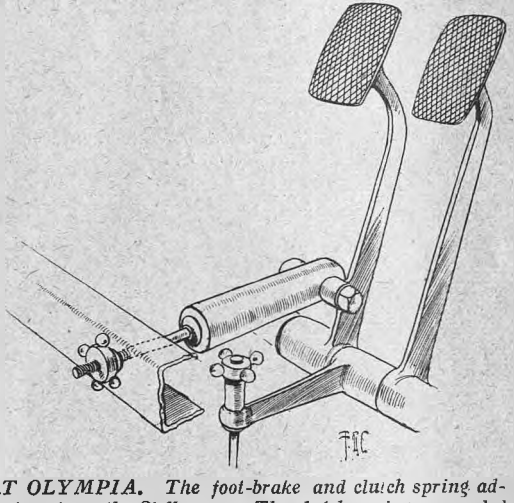
generally of the flat variety, with either a jockey pulley or some kind of automatic adjustment. It is extremely likely, however, that a few years will see the fan relegated to the limbo of the forgotten, and it cannot be gainsaid that thermo-syphon cooling with a vaned flywheel is a great advance in the direction of simplicity and efficiency combined.

Three bearing crankshafts are undoubtedly favoured by designers, but there is little doubt that the adoption of the bearing between every crank is even better practice.

High speeds have led to a reduction in the weight of reciprocating parts, and the pressed steel piston tapered towards the lower edge to reduce the weight to a minimum is being extensively adopted. Pressed steel connecting rods are not yet common, although aviation engines may have an influence in this direction before long. The use of aluminium pistons as in one of the French flying engines is not likely to find favour, for aluminium is a ductile metal and not suited to withstand recurring stresses. If we look far enough ahead there appears to be a distinct possibility that pressed steel will replace aluminium in many vital parts.

Poppet versus Piston Valves,

Valves and their gears can hardly be discussed with any certainty at the present moment. The poppet valve gives every satisfaction in the touring car, the best materials and the best proportions having been determined. The principle of the spring-controlled valve, like that of the sliding gear, certainly leaves



AT OLYMPIA. The foot-brake and clutch spring adjustments on the Stella cars. The clutch spring, concealed in the tubular casing, acts through the pedal and clutch fork.

something to be desired, but both have been so far perfected that they are eminently satisfactory in practice. There is, however, now that efficiency is so marked, a very strongly developed tendency to turn towards the refinement of the car, and it is largely on this account that the valves are now being considered. The sliding sleeves on the Knight principle have proved exceedingly efficient, but while many authorities admit their good qualities it is frequently put forward as an opinion that development should lie in the direction of placing these sleeves—or piston valves as they practically are—in an accessible position, where they can be lubricated and cooled more efficiently. It is impossible to foretell at the moment which type will eventually predominate, but undoubtedly we are on the eve of developments in this direction, which will be more clearly shown at next year's show.

Monsieur Coche, Mayor of Dieppe, travelled to Paris last week to take counsel with the Sports Committee of the Automobile Club de France with reference to the Grand Prix, 1910. In an interview with the committee, the Mayor offered a sum of 100,000 francs (£4,000) as a subscription from the town of Dieppe to the costs of the Grand Prix Race if run.

"L'Auto" Reliability Trials.

THESE voiturette trials, promoted by our energetic and enterprising contemporary *L'Auto*, will commence on December 5th and continue until the 19th—practically a fortnight. On the eve of the event we will recite briefly the conditions which govern the entries for this trial. The engine of any car taking part must not exceed 125 mm. bore and 150 mm. stroke if a single-cylinder; 100 mm. by 130 mm. if of two cylinders, and 80 mm. by 120 mm. if of four cylinders. The trial will be made from Paris as a centre, the competing vehicles covering about 120 miles per day, and running over six circular routes as under:

1. Paris, Villiers-sur-Marne, Jossigny, Crécy, La Chapelle, Coulommiers, La Ferté-Gaucher, Retourneloup, Sézanne, and return—200 kilometres (125 miles).

2. Paris, Saint-Germain-en-Laye, La Maladrerie, Flins, Aubergenville, Mantes, Bonnières, Pacy-sur-Eure, Evreux, and return—194 kilometres.

3. Paris, Colombes, Argenteuil, Bezons, Sartrouville, Maisons-Laffitte, La Croix-de-Noailles, Achères, Pontoise, Méru, Corbeil-Cerf, Saint-Quentin, Allonne, Beauvais, and return—185 kilometres.

4. Paris, Saint-Cloud, Ville-d'Avray, Versailles, Rambouillet, Ablis, Le Gué-de-Longroy, Chartres, and return—180 kilometres.

5. Paris, Asnières, Epinay, Enghien, Eaux-Bonnes, Montlignon, Viarmes, Gouvieux, Chantilly, Senlis, Verberie, Compiègne, and return—175 kilometres.

6. Paris, Villeneuve-Saint-Georges, Montgeron, Lieusaint, Melun, Fontainebleau, Moret, Grand-Fossard, Pont-sur-Yonne, Sens, and return—220 kilometres (137½ miles).

The following entries have been received:

1. Sizaire et Naudin I.
2. Sizaire et Naudin II.
3. Sizaire et Naudin III.
4. Gregoire I. (Ph. de Marne).
5. Gregoire II. (Antoine).
6. Gregoire III. (Coumat).
7. Delage I.
8. Delage II.
9. Delage III.
10. Hurtu.
11. Fouillaron.
12. Barre de Niort I.
13. Barre de Niort II.
14. Barre de Niort III.
15. Doriot-Flandrin-Parant I.
16. Doriot-Flandrin-Parant II.
17. Doriot-Flandrin-Parant III.
18. Corre-La Licorne I. (Mouton).
19. Corre-La Licorne II. (Lefrançois).
20. Corre-La Licorne III. (Collomb).
21. Turicum I.
22. Turicum II.
23. Turicum III.
24. Alcyon I.
25. Alcyon II.
26. Alcyon III.
27. Zenith (L. Arnaud, A. Vallo).

Next Year's Meetings at Brooklands.

The Brooklands Automobile Racing Club have announced the dates for its race meetings next year. The season will open on Easter Monday with a single day meeting, and the next fixture is a two days' meeting on Wednesday and Thursday, April 27th and 28th. So successful was mid-week racing last season that only one fixture has been arranged for a Saturday next year, this falling on June 18th—the end of Ascot week.

In addition to the meetings arranged there will probably be other events decided on the track, and aeroplane contests may be arranged. The fixture list is appended:

Bank Holiday Meeting—Easter Monday, March 28th.

Mid-week Meeting—Wednesday and Thursday, April 27th and 28th.

Whitsun Meeting—Monday, May 16th.

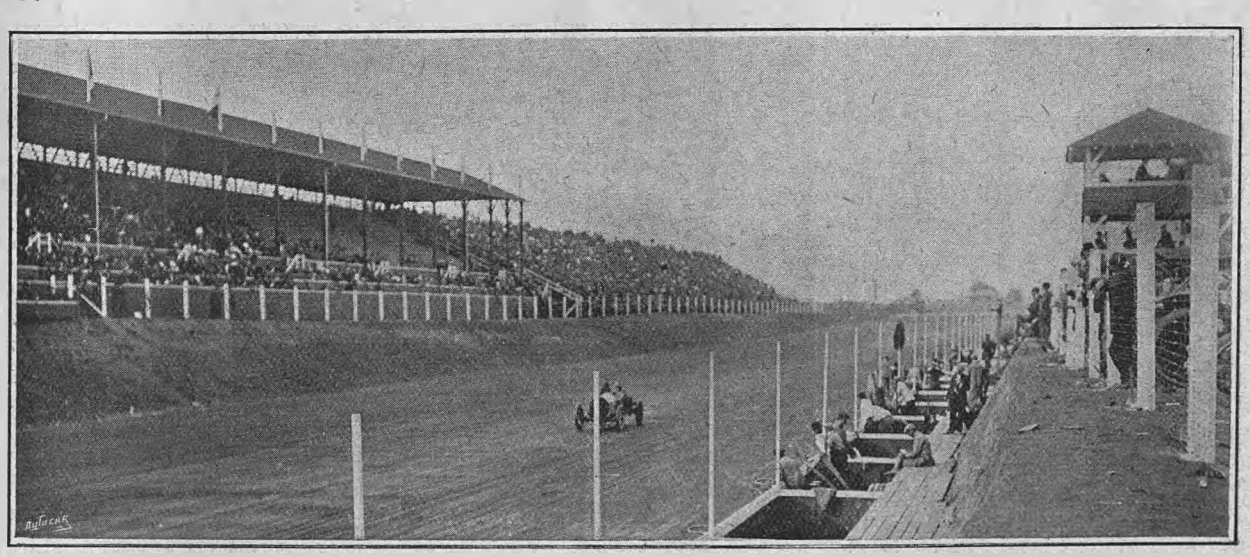
Week-end Meeting—Saturday, June 18th.

Mid-week Meeting—Wednesday and Thursday, July 13th and 14th.

Bank Holiday Meeting—Monday, August 1st.

Mid-week Meeting—Wednesday, October 5th.

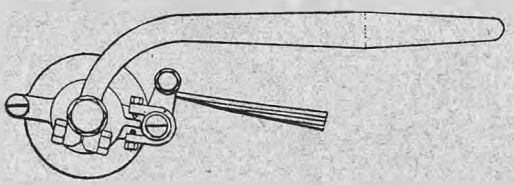
The Executive left September blank owing to the fact that so many of the club members are out of town during that month.



THE AMERICAN BROOKLANDS. The above illustration depicts the finishing straight of the new Motordrome opened on November 9th, at Atlanta, U.S.A. Some 20,000 people attended the opening meeting which was held during the progress of the Atlanta Motor Show. The circuit of the track is about two miles. World's records were not broken at the opening meeting, the highest speeds recorded being in the region of 100 miles per hour.

The Lever Spring Suspension.

INVENTORS and designers essay unceasingly to improve motor car suspension in various ways. Pneumatic tyres, of course, work wonders, but they still leave something to be desired. They minimise, nay they absorb, the minor irregularities of a road, at least so long as the tyres are not inflated too severely, but when dealing with deep transverse ruts and hollows it will be admitted that, marvellous as is



The device fitted to a rear spring.

the resilience of compressed air, it is not a perfect shock absorber. It is remarkable that in the majority of cases laminated metal springs—admittedly better in quality and far more flexible than heretofore—which were, and still are, fitted to slowly moving horse-drawn vehicles and to railway carriages moving over a comparatively even surface, continue to do duty for motor cars. The latter move at high speeds, and generally over more or less indifferent surfaces. Consequently it is not strange to find that the suspension of a motor car on the above lines is not all that could be desired. A device which it is claimed will absorb the most violent road shocks is the Lever spring, the introduction of the Lever Spring Suspension Co., Ltd., of 11, Broad Street, Bloomsbury. This is an arrangement of an encased coil spring used in conjunction with the usual laminated spring, as shown in the accompanying diagram.

Differing in strength and construction, the two types differ in action, and so compensate for the ever-varying conditions to be met with on the surface of an ordinary road.

The construction of the Lever spring is simplicity itself. To the bolt that passes through the dumb iron or spring hanger is attached a spring coiled after the manner of a watch spring, with its outer end hooked to the shackle of the ordinary laminated spring. The coil spring is so sensitive that it absorbs all the minor vibrations, its range of action being limited to a point where the leaf spring comes in to absorb the heavier shocks.

Forthcoming Conference in Paris.

The International Association of Recognised Automobile Clubs will hold its annual assembly in Paris on December 7th in the *salons* of the Automobile Club de France. The Royal Automobile Club will be represented by Col. H. C. L. Holden, R.A., F.R.S., Mr. Mervyn O'Gorman, and Mr. J. W. Orde, who will bring forward on behalf of the British club the question of the recognition of automatically and electrically timed records.

The agenda of the Conference contains the following subjects for discussion:

Relations between automobile clubs and aero clubs.

The affiliation of an automobile club in Brazil.

The recognition of speed records automatically timed by a special electric apparatus.

The regulation of the maximum amount of the subscriptions of automobile clubs.

Motor Races in Sweden.

The programme for 1910 of the races which form the great event of the winter season in motoring circles in Sweden has now been arranged. Racing will take place from February 20th to February 23rd (both dates inclusive) along the route from Stockholm to Gothenburg—a total distance of about 300 miles. The competition is to be divided into two classes. In one of them the Winter Cup will be competed for, and in the other the Gothenburg Cup. These two prizes are worth many hundreds of pounds.

There is a police trap between Worthing and Littlehampton, Angmering, on the Littlehampton side of the railway crossing.

* * *

The two-seated Rover car illustrated on page 843 of the last issue of *The Autocar* is one of the 6 h.p. models, not 8 h.p. as inscribed.

* * *

In the *Yorkshire Post* of November 11th there appear two accounts of a motor fatality on the Great North Road, a widow named Hannah Sheffield being accidentally knocked down by a motor car belonging to Mr. Percy Mays, of Bourne. In one account the car is described as travelling about fourteen miles per hour and being pulled up in a dozen yards. In the other account in the same issue a witness is named as stating that the speed of the car was thirty to forty miles per hour. The two accounts, differing as they do so materially, are, however, most significant of the grave injustice to which a motor car driver may be subjected by the point of view from which a reporter may regard the particular case. The jury, however, were satisfied that the speed was not excessive and exonerated the driver.

The Authors' Club on Monday evening last entertained to dinner the Hon. C. S. Rolls, and an interesting reminiscent discussion afterwards took place on the subject of aeronautics, in which the Chairman (Mr. Percy White), Mr. Rolls, Col. Capper, Mr. Moore Brabazon, Mr. R. W. A. Brewer, and others took part.

* * *

According to recent statistics, says the *Figaro*, the exports of automobiles from France for the first ten months of 1909 are valued at 121,160,000 francs (some £4,846,400). In 1908 they were estimated at 110,148,000 francs (£4,405,920). This does not look as if this French industry were decadent.

* * *

The need of warning signs for pedestrians is becoming apparent as motor traffic increases. Signs for motorists themselves are in evidence at every turn, but really the general public ought also to be requested to beware of vehicular traffic. Not only so, serious attention should be given to the matter of the rules of the road by teachers in elementary schools, who, as part of their duties, should be required to instruct scholars in this subject. Many accidents might thus be prevented.

Correspondence.

EDITORIAL NOTICES.

No letters from members of the motor industry will be published when they deal with subjects which may be regarded as advertisements for the writers' or their business interests. At the same time as many of the most practical suggestions come from those engaged in the motor industry, their letters will be inserted when possible, though the names of the firms they represent may be expunged, and the initials of the writers substituted.

Letters of a personal nature will be withheld.

The Editor, although accepting no responsibility for the opinions expressed by correspondents, reserves the right to publish a portion of a letter, and to omit any part which he does not consider interesting or essential.

All communications under a *nom de plume* should be accompanied by the name and address of the writer, not necessarily for publication, but to assure the Editor as to good faith.

Enquirers who ask for the experiences of private owners with specified cars, parts, or accessories, are requested to enclose a stamped addressed envelope, so that replies which space will not permit us to publish may be forwarded to them. Circulars or letters from interested parties will not be forwarded.

THE PNEUMATIC TYRE CELEBRATION.

[14970.]—By his letter of October 23rd, 1909, Mr. Fenton asked Mr. André Michelin to be present at the banquet offered to Mr. Harvey Du Cros on the 19th of this month, during the Olympia Show, which has been called "The Majority of the Pneumatic Tyre." Mr. Michelin refused, for the following reasons:

Judging by the name given to the proposed banquet, and the personality in whose honour it is being given, the view of the organisers of such banquet seems to be that the pneumatic tyre was invented by Mr. Harvey Du Cros twenty-one years ago, and that accordingly all persons engaged in the motor industry should join in showing their gratitude to him.

Now, let us see the facts and the testimonials.

Facts.—In the history of the pneumatic tyre there are four specially important facts:

1. The invention of the pneumatic tyre.
2. Its use as "fixed tube tyre" on bicycles.
3. The transformation of the "fixed tube tyre" into a detachable tyre.
4. Its use on motor cars.

Who invented the pneumatic tyre? Thomson, who patented his invention in 1845.

Who applied the invention of the fixed tube tyre to bicycles? J. B. Dunlop, in 1888.

Who invented the detachable cycle tyre? Edouard Michelin, in 1891 (Paris-Brest Race).

Who first applied this invention to motor cars? Again Edouard Michelin (Paris-Bordeaux Race, 1895).

Why, then, is the demonstration organised on account of services rendered to the motor industry given in honour of neither Thomson, Dunlop, nor Edouard Michelin, the three real fathers—and the only ones—of the pneumatic tyre?

Testimonials.—On October 2nd J. B. Dunlop, replying to an article where it said that ". . . Mr. Harvey Du Cros, who took up the air tube now in use, while still immature and unheeded, created the world-wide industry of to-day," wrote as follows: ". . . I can only characterise this statement as wild, audacious, and extravagant. I am sure no person could push an invention better than Mr. Du Cros, provided he is given a good thing, and he had a good thing in the Pneumatic Tyre Co."

In Mr. Harvey Du Cros's speech at the general meeting of shareholders of the Dunlop Tyre Co., held on May 14th, 1901, he said that ". . . The policy of this company had been to manufacture tyres by hand, but tyres for automobiles should not be manufactured by hand. . . . But in order not to injure the sport . . . we authorised one of our licensees to import the manufacture of one particular French manufacturer only, named Michelin, who had been successful. . . . We have thus placed at the disposal of the automobile world the best tyre that can be obtained to-day."

THE MICHELIN TYRE CO., LTD.

[Mr. J. B. Dunlop was present at the banquet, and his name, when mentioned by Mr. Du Cros, was loudly cheered. —Ed.]

[14971.]—In common with other motorists, I have received a circular letter from the Michelin Tyre Co., Ltd., giving the reasons why M. André Michelin refused an invitation to be present at the pneumatic tyre celebration banquet.

Surely the writer is woefully out of touch with the objects of the banquet, and could not have read the very large number of references to the matter which have recently appeared in the English cycling and motoring journals. Personally, I have seen many letters and articles referring to the banquet, but have never seen it suggested, or even hinted, that any well-informed person looked upon Mr. Harvey Du Cros as the inventor of the pneumatic tyre.

My idea is that the banquet was held to celebrate the twenty-first anniversary of the introduction of the pneumatic tyre, and that the opportunity which the banquet afforded was to be taken to make a presentation to Mr. Harvey Du Cros in recognition of the fact that he was very largely instrumental in building up the industry connected with the manufacture of pneumatic tyres for cycles and motor cars.

The Michelin Co. then proceed to make certain statements which they characterise as "facts," but some at least of these are very much the reverse of facts.

1. Thomson and his invention had no influence on the pneumatic tyre industry of to-day. His invention had been entirely forgotten by the few who had ever heard of it when Mr. Dunlop patented his tyre in 1888. Mr. Dunlop has told us that he had never heard of Thomson's tyre.
2. The Michelin Co.'s answer to this question is correct.
3. The Michelin Co. say that Edouard Michelin invented the detachable cycle tyre in 1891, but surely they are forgetting the patents of C. K. Welch (September, 1890) and W. E. Bartlett (October, 1890).
4. The Michelin Co. claim that Edouard Michelin first applied the detachable pneumatic tyre to motor cars, viz., in 1895, which proves how very far behind England France was in her appreciation of the pneumatic as a tyre for vehicles of greater weight than the pedal cycles on which it was first used. We in England were using detachable pneumatic tyres on heavy horse-drawn carriages long before 1895, and when the motor car came along it found English carriage tyres ready for its wheels. I myself used a brougham with pneumatic tyres in London in 1894, and the tyres were perfectly successful.

The answer to the Michelin Co.'s question, "Why is the demonstration given in honour of neither Thomson, Dunlop, nor Edouard Michelin?" is "Because not one of them did what Mr. Harvey Du Cros has done."

H. W. BARTLEET.

UNNECESSARY ROAD WARNING NOTICES.

[14972.]—I should like to know whether certain notice boards near Folkestone are authorised by the Motor Car Act; if not, whether there is any power to compel their removal; and if there is, how it happens that none of the associations formed to look after motorists' interests have taken no action in the matter. I am not a resident in Folkestone, but I assume they have representatives in the district.

When within sight of Folkestone, on the Elham Valley main road from Canterbury, having descended Etchinghill, one is met, on the right near the bottom, with a notice-board in prominent letters as follows:

B.F. AND R.H.

TAKE NOTICE BY VIRTUE OF ORDER DATED AUG. 23rd, 1909,

THE SPEED LIMIT

IS ON THIS ROAD REDUCED TO

10 MILES PER HOUR.

T. JONES, Clerk M.O.B.C.

That is the sole notification of a limit of speed. It does not say where the limit begins or where it ends; nor is there at its ending, wherever that may be, any similar notice warning drivers going towards Canterbury of the existence of a speed limit.

The road is a fine straight one, not hedge-lined, and quite open at the point where the board is erected—on land in the occupation of Mr. Markham, M.P., who, I am informed, is himself a motorist.

Continuing down the road one finds, on the left this time, a notice board with the word "Danger" inscribed on both sides of it. The road beyond this bears, but by no means sharply, to the left; and the road to the right is the private roadway up to Mr. Markham's house.

Now, except the danger which may be provided by the private roadway from Mr. Markham's house, a less dangerous road it would be difficult to imagine. How comes it then that there is a speed limit? Has any Local Government Board inquiry ever been held? Who made the "Order dated August 23rd, 1909"? What do the letters "B.F. and

Correspondence.

R.H." heading the notice-board mean? And what is "M.O.B.C." of which it alleges Mr. T. Jones the clerk?

If no Local Government Board inquiry has been held, is it open to any landlord to erect such notices on his land as he pleases?

Such a notice so uselessly displayed is particularly misleading. It is like crying "Wolf" when there is no wolf, thus tending to put one off one's guard. About half a mile or more further on towards Folkestone one comes across three sharp double S turnings where a ten-mile limit would be justified, but they are only notified by a triangle.

The speed limit board being over half a mile or more off the first of these bends, which occur only after the Elham Valley Road has merged into the Ashford to Folkestone Road, on which road there is no such limit notice approaching the bends, it is clear the notice has no reference to these bends, as drivers from Ashford never come near the road containing the notice-board, added to which there is no such speed limit notice-board for these bends when one is approaching them from Folkestone—merely a triangle.

I seem to remember reading that one of the international regulations recently proposed is aimed at preventing the erection of any but legally authorised notices. Is this a specimen of the bluff they would put an end to? B. M.

HEROIC REMEDY FOR POLICE TRAPS.

[14973.]—In support of Mr. Burch's letter [14925], I agree with him that if, by a combined movement, motorists were to choose going to prison instead of paying fines, the ratepayers would soon insist on "trapping" being stopped. For instance, a short time ago in one of the South of England courts there were seventy-two motor summonses in one day. The fines amounted to about £140. Now, if instead of £140, to relieve the rates, there had been thirty-six prisoners to be kept in the First Division for one month, I do not doubt that a few of the "public" would have begun to see the evil of police traps. WILLIAM VICTOR SHERWELL.

RIVAL MOTORING ORGANISATIONS.

[14974.]—If "Owen John" is not a member of the M.U. he might like to know that that body entertained during the summer the Ligue Internationale, has issued 1,200 signs of warning, etc., has received (in trust) nearly £7,000 for triptyques, and that during the last three months 194 legal cases have been dealt with, to say nothing of organisation, highway, touring, engineering, and motor cycle committees. The R.A.C. and the A.A. both do good work for "us," each in its sphere, but neither has done more for the public than the M.U. If "O.J." would put his shoulder to the wheel instead of sitting on the fence laughing, he could probably do some good. It seems to me most unfair to say that either body is pleased at the discomfiture of the other, or that the extinction of either would be no loss. Anyhow, the individual membership of the M.U. has increased by nearly fifty per cent. during 1909. R. HANNEN.

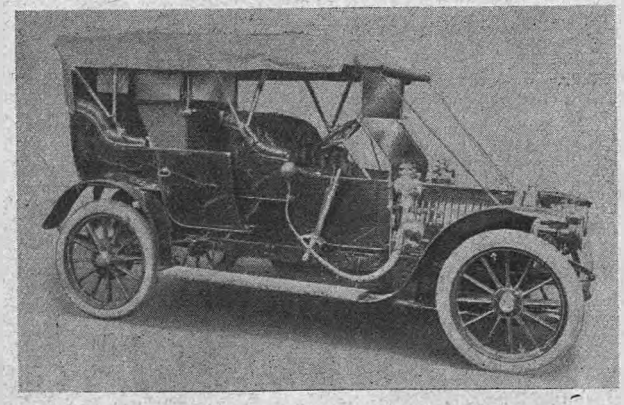
SHORT MEASURE IN PETROL.

[14975.]—Recently we notice motorists have voiced in your columns complaints of leaky petrol cans and consequent short measure. Considering the enormous number of spirit cans in use we are of the opinion that the number of leaky cans is infinitesimal.

We venture to suggest that if motorists would use the cans with a little more care and consideration it would help the importers and distributers very materially. It is no infrequent occurrence for cans to be received back with the bottom seam twisted out of shape and rent open, this being the result of the practice of opening the faucet of one can with the bottom edge of another. This practice prevails to such an extent that for some time past for all our new cans we have adopted the method of strengthening the bottom seams by reinforcing them with a strip of stout metal, and other firms have also since seen the necessity of doing likewise.

In regard to the question of short measure, if motorists could see the precautions that are taken by ourselves, as well as other distributers, by providing automatic filling machines, passed by the inspectors of weights and measures, they would feel, as we do, that every precaution that human ingenuity can at present devise has been adopted.

We would also like to state that the practice of motorists using motor spirit cans as storage receptacles for water, etc., from our experience seems to be largely on the increase, and a moment's reflection will make it apparent how injurious is the practice of using cans for other than the purpose for which they are intended. ANGLO-AMERICAN OIL CO., LTD.



AT OLYMPIA. A complete 16-20 h.p. Hotchkiss car.

AN AMERICAN VIEW OF THE SHOW.

[14976.]—It has been my privilege to visit this year the Olympia Motor Show, and undoubtedly it is the finest show, as regards the high class and comprehensiveness of the exhibits, ever held. A general inspection seems to point to a certain finality of design having been reached, and to the fact that all the best known makers differ but slightly or not at all in general principles; and interest in them centres in the methods employed in carrying out an accepted standard of design and in the respective workmanship and finish.

Yet on more careful examination not a few radical changes in design are creeping in. The Daimler Silent Knight engine is exceedingly interesting and worthy of very careful study and consideration. The building of the engine and gear box in one unit is undoubtedly an advance, as also the evidently rapid adoption of worm drive, which, speaking as an engineer, is by far the nearest approach to ideal transmission at present known for motor cars.

I was unable to trace the originators of these two important improvements until on visiting the stand of the Lanchester Co. I was informed that this firm claimed the introduction of both. And I confess that this was the stand on which I lingered longest. I here found a car differing in very many important points from ordinary practice, yet the more one examined this car the more one was struck not only by the ingeniousness and the exceedingly fine workmanship displayed, but especially by the genuine science evinced in the designing. As regards simplicity, cleanness of design and get-at-ableness, the engine is not to be surpassed by any in the show. In every case where design appeared to me to differ from the standard practice, the difference struck me as an undoubted advance in motor engineering, and scientifically and practically correct. The springing is magnificent, and very probably will be adopted ere long by other makers. In fact, I found it had been adapted by another firm to their rear axle, though in this case it did not appear to me to be so well placed as regards the slinging of the car body as on the Lanchester.

I must confess that with all our boasted ingenuity and inventiveness we have so far not turned out a car which shows such an advance in many respects in this particular branch of engineering as does this all-British car. The products of this firm and the influence it certainly appears to be having on the designing of motor vehicles of the future, as also the really splendid workmanship and finish displayed in the cars turned out by nearly all the British firms of repute, undoubtedly gives England the premier position today in this industry. And, as long as she produces, not alone practical but also really scientific designers, the splendid result of whose work we find displayed at this show, she will have no difficulty in retaining it.

AN AMERICAN IN LONDON.

DISCOURAGING BRITISH TRADE.

[14977.]—I note you have a paragraph on the discouraging of British trade by the railway authorities in South Africa. Is this entirely due to the authorities? Or is it because British goods were not advertised and "pushed" to the same extent as the American? By "advertisement" I mean sending reliable, energetic, and persuasive gentlemen of the commercial profession with samples of their wares to get hold of and to convince prospective purchasers.

When I was in South Africa the complaint was everywhere the same. "You English are letting the American beat you in everything, not on account of the better quality

of their goods, but because they send in cheaper stuff, and they study the wants of their customers. They send round persuasive commercials who know the country and the wants of the people, and who hang like grim death on to any prospective buyer. The American may not get the order the first o· the second time, but in the end he gets it because he is the ə on the spot."

For instance, in South Africa the windmill pump is, next to the corrugated iron roof, one of the most familiar features of the landscape. In one district in South Africa a large dealer in these goods told me that there was only one English-made windmill pump on the market. (It was made by some West of England firm, I believe.) There were at least half-a-dozen different types of American-made pumps being sold in the same district.

In other lines it was just the same. I do not know if the success of the Americans is due to their tariff, or merely to their more go-ahead methods, but, in any case, unless English manufacturers are prepared to make a fight for it, they will lose the market there will be in South Africa for cars of all kinds as they have lost it in the case of other goods.

E. W. SHEPPEE.

HOTEL GARAGES.

[14978.]—I shall be greatly obliged to you if you will kindly allow me, through your columns, to draw the attention of motorists to the abuses which have crept in in the matter of hotels certified or appointed by the Royal Automobile Club.

I have come across several cases where hotel keepers, treating the rules for appointed hotels as a dead letter, charge anything they may think fit for storage, etc.

I have always brought these cases to the notice of the Royal Automobile Club, with the invariable result that after a voluminous correspondence on the subject the matter has been dropped.

The latest case to which I drew the attention of the Touring Committee was that of an hotel in —— which in the Club Year Book is described as possessing a motor house.

Last August I was in —— and put up my car at what I was told by the hotel porter was the hotel garage. However, when it came to paying the bill I discovered that the hotel had no connection with the garage; in fact, the hotel possessed no garage of any description whatever.

Now after three months' correspondence on the subject between the club, the hotel management and myself, the state of affairs is as follows: The Touring Committee have considered the matter, and have thanked me for drawing their attention to the case. *Et praeterea nihil!*

Now the Royal Automobile Club *Journal* publishes from time to time the names of the hotels appointed since the publication of the Year Book, but my request that a correcting notice be published stating that the hotel in question has no garage remains unanswered to this day.

I do not know whether it is hard for an hotel keeper to get placed on the R.A.C. hotel list, but evidently once there the proprietor can safely say with MacMahon, *J'y suis, j'y reste.*

C. A. BRANTSEN.

THE DEVELOPMENT OF THE TORPEDO BODY.

[14979.]—As body builders we are much interested in all matters appertaining to body design and construction, especially is this so in respect to the development of the style of body known as the Torpedo.

We are one of the firms whose attention has been called to the infringing of the design claimed by Capt. Masui, and, in reply, brought several things to his notice that apparently had escaped him.

We do not wish to stop the flow of guineas to the fund that benefits by the license fees paid to him, but feel compelled to stand by the facts as we know them.

You claimed a few issues ago to have had yourself a guiding hand in this development, and to this we can personally testify, and further, a customer of ours—Mr. F. A. Bolton, of Oakamoor—can also rightly claim a share in this, for as far back as March, 1908, we developed and put into definite shape a body on the general lines of the Torpedo body, and fitted it to an Ariel chassis, which was illustrated in *The Autocar* during the following month. A further development of this appeared this year in the shape of a Daimler car for the same gentleman, illustrated in *The Autocar* of June 12th, this being the first Daimler chassis fitted with this type of body. Further still, our registered Torunda body is a cross between the Torpedo and the now old Rotund, which was exhibited on the Dennis stand at Olympia.

This is recent history, but we all of us appear to have been anticipated somewhat by a designer named Noble, who, in 1905, patented an arrangement for sliding and adjustable seats inside a body constructed as a shell body with seats wholly detachable, the plan of which is exactly on the same lines of the present Torpedo. We became aware of this patent, "which is believed to be a master patent," through our protecting certain features in our Torunda body, and as this patent was for disposal, we have purchased it, which gives us the rights claimed for it.

We think it only right to put this knowledge before your readers so that the facts of the case may be known.

HEWER'S CAR BODIES, LTD.

TRACK V. ROAD TRIALS.

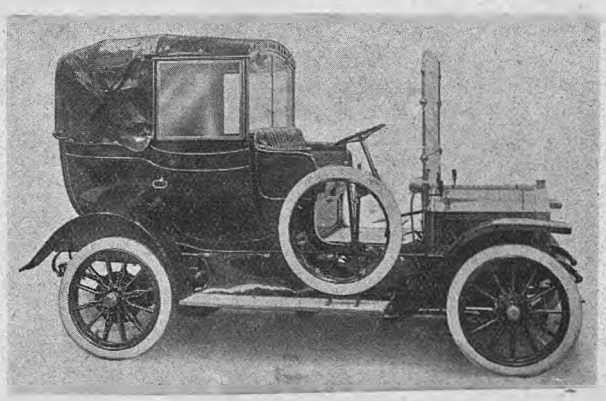
[14980.]—Will you kindly, through the columns of your valuable paper, allow me to ask readers' opinions on the relative value of three interesting records recently set up? I am referring to the speed records of the Thames and Benz cars on Brooklands Track, and the 2,000 miles non-stop engine run of the Iris on the road. My opinion is that speed records with special cars on special tracks for an hour or so are of no consideration to the average buyer of a touring car, as the cars establishing these records are in almost every case absolutely different from the standard cars sold by the same makers. In contrast to this, we have the Iris firm showing what a standard car can do on the road under ordinary touring conditions. Being a motorist myself, I think that a car that can run 2,000 miles on the road without an engine stop is far more reliable than a car running on a special track for an hour or two.

RADIO.

WATER CIRCULATION.

[14981.]—Referring to the tendency to adopt thermo-syphon circulation, one would gather from what can be read in the various motor journals that all one has to do is to abolish the pump, and then expect things to go on as satisfactorily as, or more satisfactorily than, before. I know more than one motorist who has done this with the most unsatisfactory results. Natural water circulation is all very well, provided the engine has been previously arranged for it, and I have been a consistent advocate of this system ever since I designed the first small four-cylinder low-priced cars, six years ago, but for those motorists who are troubled with unsatisfactory pumps it cannot be too widely known that thermo-syphon circulation requires a much more efficient radiator and very much larger inlet and outlet pipes, and it is very gratifying for me to observe that the very large outlet pipe, practically conducting water from the whole length of the cylinders, which I introduced three years ago, is now being copied pretty generally. Moreover, these pipes must be arranged in such a manner as to lend themselves to natural water circulation.

I imagine very few cars, especially those of the smaller and cheaper types, are over-radiatored, and a very long first gear ascent on a hot day with a following wind proves a trial to a good many of them, and any car that boils the water going up such a hill on such a day is not a subject for pump abolition. There is little doubt that pumps of to-day are very different from what they were a few years ago, and a modern well-made centrifugal pump, self-contained in the crank case casting, may easily run for a year or more without requiring the slightest attention, and



AT OLYMPIA. A 16-20 h.p. Unic cabriolet.

Correspondence.

as the additional weight is probably not more than a tenth of that necessitated by the larger radiator and pipes, it gives cause for reflection, as a saving of weight means less petrol and less cost of tyres, and gives greater efficiency all round, and the abolition of the pump, considering present-day requirements and refinement, is not a matter to be lightly considered. CHARLES BINKS.

DECLUTCHING *V.* AIR BRAKE.

[14982.]—In "Small Car Talk" in your issue of 17th inst. I notice a paragraph headed "Declutching *v.* Air Brake," in which the author remarks: "It is obvious that engine compression is pretty powerful, for if not it would be useless as a brake."

But is it so very obvious? If you compress the air on the up stroke will the air not expand on the down stroke, giving back practically all the work that has been done upon it, always presuming the valves and pistons are tight? Further, "If the throttle be shut, engine compression and suction cannot waste their tug on the inlet pipe."

The idea of the engine compression wasting its tug on the inlet pipe is, I think, quite new. Everyone will, I fancy, cordially agree on the advantages of a swish throttle, but it came almost as a shock when I learned that prior to fitting my swish throttle a strange thing called a "Tepid Vacua" had been disporting itself inside my cylinders, possibly "wasting its tug" in there while I drove on in ignorance.

Seriously, I am sure there are many motorists who take an interest in the theoretical side of their hobby, and who would be interested in getting this compression brake question threshed out in terms having some approach to scientific accuracy, which is, to use "Runabout's" words, "a small refinement, but it makes for efficiency and cannot cause any trouble." M.I.MECH.E.

TYRE PROBLEMS.

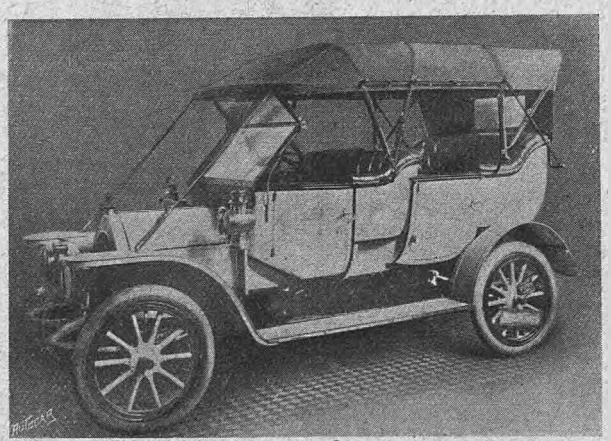
[14983.]—Dr. D. W. Samways [letter 14935] appears to have overlooked a most important practical deduction from his air pressure experiments in tyres. If, to quote his words, "a pressure of 70 lbs. in a tyre exerts an upward pull of several hundred pounds," it is only necessary to increase the pressure and add additional wheels, and the lift will raise the car off the ground and convert it into a flying machine.
RUDOLPH H. SMITH.

[14984.]—I think Dr. Samways has arrived at a set of conclusions regarding tyre strains, and wheel carrying car weight, altogether wrong in theory and in practice.

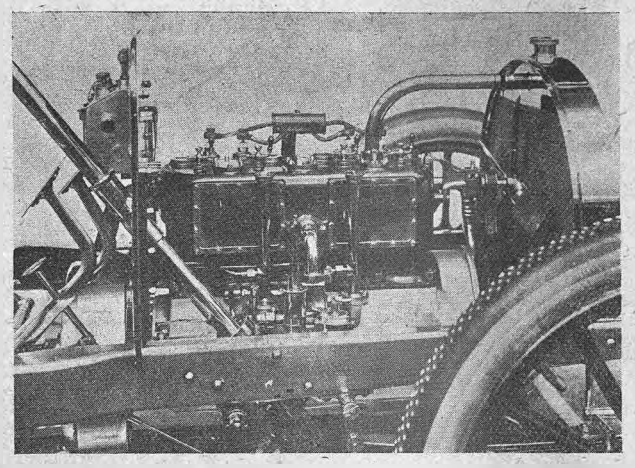
The best way to arrive at the actual conclusion, in my idea, is to compare the tangent spoked wire wheel and the wood wheel.

In the case of a tangent spoked wire wheel the weight from hub is taken directly to the top of the rim (assuming no motion in car), the action being to pull down that part of the rim and make it oval in shape. This action being counteracted by the spokes taking up the strain from hubs to sides. Hence, while the top part of the rim would appear in the first instance to take all the strain, this is distributed round the rim by the compressing action of the dead weight, which weight is finally transmitted to the part of rim in actual contact with the ground.

In the wood spoked wheel the weight is transmitted direct from the hub through spoke to part of rim in contact with ground, and only so far as the spokes grip the felloe of the wheel does the upper part of wheel bear any strain. In both cases the weight is taken to a point in the wheel nearest the ground. This is inevitable, the only difference being in the distribution of the strain round the rim.



AT OLYMPIA. A complete 12-14 h.p. N.A.G. car.



AT OLYMPIA. The off-side of the Hotchkiss engine showing an absence of intricate pipings and connections.

Coming to the tyre, on inflation the tyre tends to burst outwardly from the rim, and when in suspension in equal degree all round the wheel, the strain or pressure acts outwardly from the centre of rim all round the tyre in degree according to pressure. This outward pressure is always present at all times and under all conditions, but the pressure may be relieved under some conditions in one direction, but not in all directions. Hence when car is lowered on the ground the outward pressure from rim vertically towards ground is relieved, but the pressure is still in existence in a horizontal direction, and the fabric of tyre still under strain in that part of the tyre immediately in contact with the road, the only difference is that the direction of the strain is changed momentarily. When driving there is also a further strain which is to be taken into consideration, and which Dr. Samways has entirely overlooked, viz., the tangential driving strain from rim to portion of tyre in frictional contact with the road. This is present all round the tyre, but in greater intensity just where the tyre comes in contact with the road, and the cause of many bursts. Hence a tyre is more liable to burst at the bead in that portion that is in contact with the road owing to its horizontal and tangential stresses at that particular part. All round the other part of the tyre the bead or middle may burst, but there is no particular stress either on top or sides, front or back of a tyre, as the air being mobile seeks its level, and when the part in contact with the road by compression squeezes a certain volume out of that certain part, that volume distributes itself all over the remaining part of the tyre at equal pressure.

The support spoken of in the letter and illustrated will be found to exist all round the tyre, and if the two half rims and tyres were placed in a different position the pressure result would be found the same, or if Dr. Samways will place the top of his experimental tyre and rim under some fixed beam or table and try to pull up the bottom half he will find it requires even greater power to bring the two edges together, the difference being excess in weight only of his apparatus. Hence the car is supported by compression of air under the rim closest in contact with the road upon the bead and sides of that part, and also by the help of the compressed air all round the remaining portion of the tyre and not on the top alone. The air in the tyre finds a level that is capable of supporting the car by passing from the section in immediate contact with the road into the other part of the tyre until completely balanced

The only other point to mention is the measurement. If Dr. Samways will blow up his tyres to such degree as to allow no deflection when the car is on the ground, he will find the only difference in measurement will be caused by compression of the rubber, instead, as in the altered contour, of his tyre and the rubber and canvas being "swallowed" by the flexible air tube, which causes the difference in his measurements.
H. SIDDALL.

[14985.]—The experiment described and illustrated in Dr. Samways's letter [14935] I do not think proves his views that a motor or cycle wheel receives its support from above. The top half of his divided rim rises because the tube stretches, not being sufficiently strong enough to hold the pressure of

air, and in doing so forces apart the two pieces of rim. If a section of the bed of the rim only were cut out leaving the cover intact the tube would then blow down below the rim. The support of the wheel is distributed over the whole of the air pressure contained in the tyre and over the canvas casing and the rim, both of which are undergoing strains of tension and compression. Inflate a tube, and put weight or pressure upon any particular spot, and the tube will expand not only in an upward direction, but all over. The air pressure being equal everywhere, the tube will stretch most at the weakest parts. That portion of a tyre between the wheel and the road seems to me to undergo by far the greatest strain as the fabric is under tension in one direction and at the same time under compression in another direction, and undergoing a similar action to being stretched out and squeezed between the jaws of a vice, not to mention the circumferential strains on the driving tyres and lateral strains on all four. C. MYWAYS.

COUNTRY OF ORIGIN.

[14986.]—In your issue of November 6th I notice that the Bedford car is described as being British made throughout. This question of the origin of the Bedford car has, I believe, been brought several times before the public, and I shall be very glad if the people who are handling it in this country will answer the following questions:

(1.) Is it not a fact that this is in reality the Buick car, which is manufactured in America in very large quantities?

(2.) Are not the chassis being shipped direct from America to London, where English bodies are fitted, and, perhaps, details to the value of £10 are attached to the chassis?

(3.) Is it not true that the company which is handling the Bedford car over here is partly owned by the manufacturers of the Buick car?

I have received a circular which states that 10,000 of these chassis are put through at a time, and every part of each is exactly like the same part of another. Could this statement possibly be made regarding any car which is being manufactured in England at the present moment?

Therefore, sir, as a reader of your paper for many years, and one who really believes that what he reads in *The Autocar* is true, will you allow me to ask you to have a searching enquiry made into this Bedford car, because unless satisfactory answers can be given to the foregoing questions I consider the whole thing is liable to bring about a great deal of misunderstanding.

If American cars are to be imported, and sold over here, let them be sold as American cars, on their own merits.

If you find I am right (as I think you will), this car cannot be claimed to be manufactured throughout in England, and hardly any part of it, in which case I think the whole matter should be put before the Society of Motor Manufacturers and Traders, which body, I believe, undertakes to protect the trade, and, I trust, the public as well, because the public must be protected.

I enclose my card, and shall be glad to know what the reply of Bedford Motors, Ltd., will be. JUSTICE.

OLYMPIAN DELIGHTS.

[14987.]—How is it that so few appear to recognise that there is something after all in the old adage that "Manners maketh Man," and that as this must necessarily refer to the old-fashioned courtesy, which one would imagine assisted instead of retarded business relations, I wonder what the type of creature can be that is so offensively ignorant of its possibilities. Is he a man at all?

After eight years' experience of motor shows, and a buyer of many cars for personal use, I conclude that "hogs" are quite as rampant on some exhibit stands as is the genus met with on the road

Of course, we are all gentlemen nowadays, *i.e.*, if in youth we assume an air of swagger, supported by a fixed grin and bradawl moustache, the *tout ensemble* forming part of the early toilette for the day, and imposing possibly on a large section of the British public; but, on the other hand, tending to drive a cautious buyer out of the building.

The reeking atmosphere at Olympia may possibly favour congenital tendency to "stye in the eye," several instances of which may be found in the Gallery.

STUDIED TREAD.

THE SALISBURY PLAIN ACCIDENT.

[14988.]—I see in *The Autocar* of November 6th that Mr. Hugh Hughes [14914], while congratulating Mr. J. Kingston Barton on his splendid letter [14886] which appeared in *The Autocar* of October 30th, states that *The Chauffeur* is sending out petitions for signatures to send to the Home Secretary, praying for a mitigation of the severe sentence passed on Saytch. Would it not be possible for *The Autocar* also to follow this excellent lead and collect signatures for the same object amongst its readers? SB 90.

HONOUR WHERE HONOUR IS DUE.

[14989.]—How true is the old saying, "Nothing is new under old Sol"! In your issue of the 13th inst., under the heading of "Recent Patents," you illustrate a double-acting petrol engine, and describe it as the invention of Mr. J. D. Roots. May I be allowed space to state that I obtained a provisional patent (No. 25,349) for practically the same engine on November 14th, 1907. FRANK MORRISS.

POLICE TRAP SIGNS.

[14990.]—I have read the letter of "Shell" [No. 14939] and also your editorial remarks with much interest, for I can say from experience while motoring in America that some mutual friendly signal between motorists is far safer than relying on any system of road scouting, and I do not see that the police authorities can take any exception to fellow motorists warning one another.

I have motored in most of the Central States during my visit to America, and covered well over 5,000 miles, and was only once "trapped" and caught, and I think it would be as well to put this on record for the benefit of motorists here, in case the same trick is played on them, should the private signal system be adopted.

I was travelling between Atlantic City and Philadelphia on a cold wet day, so you can guess I was anxious to cover the sixty odd miles as fast as possible, and as the road is beautifully wide and had a good surface, with trees and bush well back from the sides, I was sure of being free from a trap there.

Another car approached me, and the driver held his arm out (as is done here when turning into a side street), and as soon as I recognised the driver's signal, which was by a hand salute to my cap, he held up his first finger and passed on, which indicated a trap between the point of signal and the next village. Having passed the trap the driver can open up again, for no one cares to motor on a wide open road for sixty miles at, say, 18 m.p.h., which is necessary to avoid a trap there, for they are nearly all long-distance traps; in fact, very often from the police station in one village to the next, twenty miles off, telephonic communication being used to advise the distant town of your number, colour of car, etc., and the time you passed that station. The result is, you are waited for at the next village and fined there and then.

It was on one of these roads that I was caught. The first car had signalled trap, so I gradually eased up, whereupon a second car following close to the first gave me a very alarming signal to pull up, by holding the centre of the road and waving an arm. I pulled up, and to my horror it was a police trap on wheels from the distant village, and had met me at the ten-mile post, stopped me, and showed me I had left the first village at a certain time and had covered the ten miles at 30 m.p.h. However, I do not think our police would condescend to do such a thing, so we may therefore rely on some system of private signals, which I beg to suggest should be an up and down movement of the driver's right hand, held out short as when easing up in traffic; the recognition of same by the salute of the driver of the approaching car, and then the indication of whatever number of traps have been passed within, say, the last twenty miles, by holding up one, two, three, or more fingers for ordinary 20 m.p.h. traps, and two showings of the full hand of five fingers to represent a 10 m.p.h. limit trap.

I trust "The Autocar League" will do something in this direction, and I also think that it would be interesting to have other suggestions and criticisms.

If the police would only follow the example of those in the colonies, such as New Zealand, and allow motorists to use their own discretion as to the proper speed along the road, and fine them heavily for reckless or dangerous speeds, we would all be much happier. I believe the clause in the motor car speed law there runs something to this effect: "That the driver of an automobile shall not permit such machine to travel at other than a reasonable speed under the conditions of the traffic or the roads"; and I know from my own experience while motoring there that I have been fined for doing 15 m.p.h. along the principal street during the day, and have been waved on by the same constable at 30 to 35 m.p.h. in the early hours of the morning returning from a supper party. So you see how flexible this law is, and how much fairer it is than that which exists here.

G. B. H.

A New Type of Engine.

An Outline of a Radical Departure from Standard Types.

THOUGH some matter-of-fact people profess to regard the motor car as practically standardised, developments arise from time to time which have more than mere novelty to their credit. Occurring in all the more important details of a car this evolution is found occasionally in the engine itself, though as a rule innovations in this quarter are usually regarded with more or less suspicion by the average user. Still, the Knight motor has proved so efficient, when well constructed, as not only to cause somewhat of a revolution in our ideas, but also to pave the way for other inventions of a more or less practical character. The latest of these is an ingenious modification of the petrol engine, due to a clever conception on the part of Mr. H. F. Thrutchley, the design of which has just been submitted to the writer for an opinion. It would be unwise at this stage to give full particulars—they will be published later, when certain detail improvements have been effected—the present description is therefore confined to the general outline.

Compared with Present Engines.

The engine can be constructed with any number of cylinders, being, indeed, very similar to the ordinary types used in modern cars. To the external view the motor is, in fact, very similar to the car engines of to-day, excepting that there are two inlet valves and the same number of exhaust valves per cylinder. When one examines it internally, however, a radical departure from the usual form is seen. Being in essence a double-acting engine, though working on the Otto cycle, there are twice the number of firing strokes per x revolutions, which is obtained by utilising both sides of the piston head. The method is as follows:

Each cylinder has a trunk piston of a form similar to those in use in internal combustion engines at the present time, but provided, however, with a pair of ports on opposite sides.

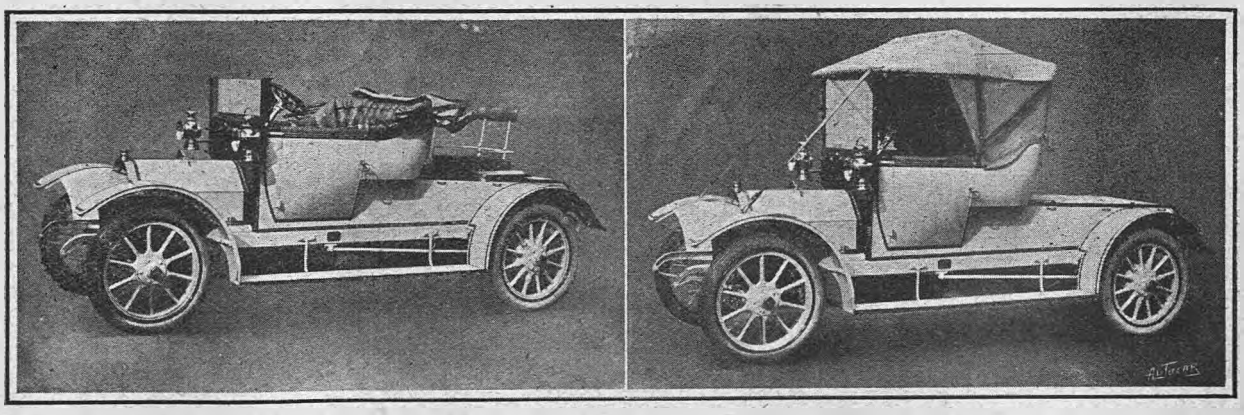
Two inlet valves are required per cylinder, one of which is in the usual position, the other being vertically below it and about half-way down the cylinder wall. The former feeds the ordinary combustion chamber, the latter supplying gas to an inlet port, whence it enters the *interior* of the trunk piston. The exhaust valves are similarly arranged, all the valves being, at the moment, of the poppet type. A fixed head fitted with rings, over which the lower portion of the piston travels during its reciprocating motion, acts as a buffer, causing the piston to ascend by the reaction of the exploding gases. From this it will be seen that a power impulse is given to the piston in both directions, occurring alternately of course, so that the usual "idle" stroke becomes, under this system, a working one, an explosion taking place below the piston head during this period. The connecting rod is attached to the piston below the fixed head, which has no opening of any kind in it, thus obviating difficulties with packing glands, etc. The exact method of attachment followed I am not yet at liberty to discuss, nor the size of the ports or the nature of the ignition system. Nevertheless, what I have seen convinces me that a clever departure from standard types has undoubtedly been made by Mr. Thrutchley, and it should not require much additional experimenting to place this engine within the region of practical politics. Obvious queries naturally arise in one's mind as to whether an engine of this description would give trouble by overheating, etc., but from what I have already seen I should be surprised if these difficulties proved insuperable.

More Power.

At a rough estimate, allowing for the smaller capacity of the piston's interior as compared with that of the cylinder, an engine of this type may be expected to give between fifty and seventy per cent. more power. The design requires greater head room, probably five or six inches in the case of average powers, which, however, can hardly be regarded as a drawback.

Two or three well-known automobile engineers and designers have already expressed a very favourable opinion of the engine, and when a few alterations have been completed I expect to find the motor one that will arouse considerable interest by reason of its novel design and practical value. AJAX.

[The main idea of the engine described by our correspondent is distinctly an innovation, but before passing an opinion regarding its value as a practical design we shall require more particulars on several matters, some of which, although so lightly touched upon in the foregoing description, are certain to present a great deal of difficulty in the overcoming. Without entering into a detail criticism of the engine on the somewhat meagre description given, we would point out that the methods of securing the inner "head" and the gudgeon pin bosses—in addition to such matters as cooling and ignition—will necessarily be extremely ingenious if successfully carried out.—ED.]



A 11-16 h.p. Motobloc car, fitted with a comfortably designed high-sided two-seated body, with folding seat behind. The body is finished in light grey, upholstered in real pig skin, and was designed by Mr. D. R. Harfour, of 61, Haverstock Hill, N.W.

The Reid-Reikie Spring Wheel.

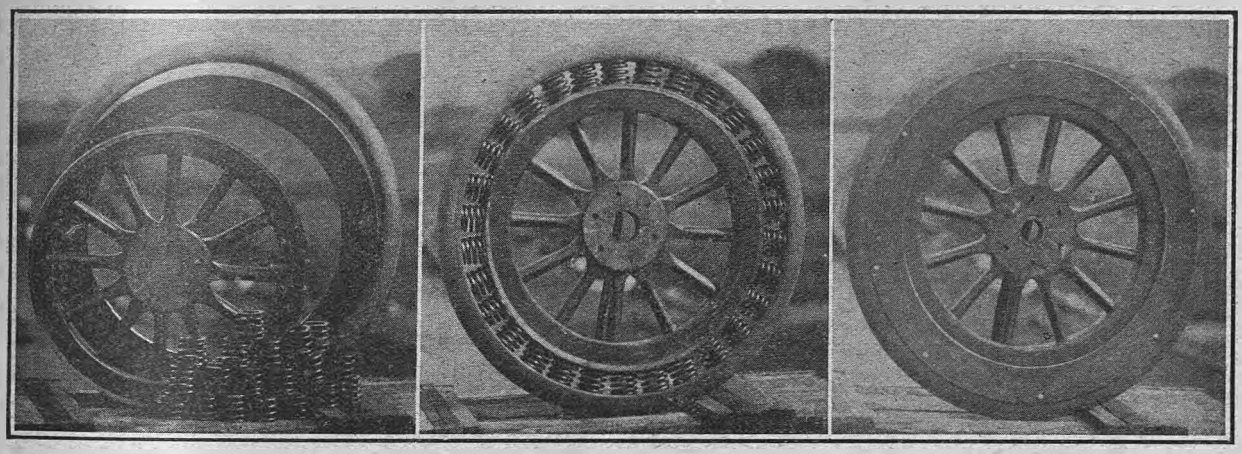
Another Attempt to Supersede the Pneumatic Tyre.

SPRING wheels have long had a fascination for inventors, and within recent years the rapid increase of self-propelled road vehicles has directed increased attention to the subject. The neutralisation of vibration and shocks is as essential to the well-being of the vehicle and mechanism as it is conducive to passenger comfort; and though much may be accomplished by suitable springing the wheels themselves should be capable of eliminating minor jars and jolts due to uneven road surfaces. The pneumatic tyre does this to perfection, and where expense is no consideration will probably always hold first place for fast and luxurious travel.

The wheel under notice, which has been patented by Mr. Andrew T. Reid, of the North British Locomotive Co., Glasgow, and Mr. John Reid, of Dumbreck, Glasgow, is intended to provide, in conjunction with solid rubber or other elastic treads, something practically as comfortable for ordinary every-day use as the pneumatic-tyred wheel. The first cost will be about the same, but the maintenance bill should be greatly lessened. So far, the invention appears to fulfil all expectations, as out of over a dozen wheels in use no failure has occurred, and not a single spring has given, though one steam car, weighing over 35 cwts. and fitted with driving wheels of this type, has been in regular use for over a year. This pair of wheels gave fairly comfortable running over granite setts when the solid rubber tyres were experimentally replaced by wooden blocks.

The essential difference between the Reid-Riekie wheel and those with a generic resemblance lies in the fact that the radially-disposed cushion springs are not positively fixed in any way. The collective pressure of the springs between the wheel and the outer tyre has proved amply sufficient to transmit driving or braking power, while at the same time the arrangement gives a degree of elasticity highly advantageous to road tyres and mechanism. In this connection it may be mentioned that an electric tramcar weighing fourteen tons loaded is running on these wheels with most satisfactory results. The helical springs, which of course vary in strength to suit the load, are placed in position round the wheel sufficiently under compression to carry the static load with the wheel and tyre concentric. The side plates merely enclose and confine the springs laterally.

The accompanying illustrations give three views of a 32in. Reid-Riekie wheel suitable for an ordinary touring car fitted with a 2½in. solid road tyre. The artillery wheel is 22½in. diameter over the steel felloe, and the space between this and the steel rim of the solid tyre measures 2¼in. There are thirty helical springs of ⅜in. round steel which measure about 3in. long before compression. For insertion, the springs are gripped partially in a pair of blacksmith's tongs, and squeezed sufficiently to allow of insertion, after which they are easily driven in by a tap from a hammer. The steel side plates are about ⅛in. thick, and are secured by bolts passing between the springs just inside the steel rim of the solid tyre. The fitting up of the complete wheel from the component parts only takes a few minutes. In case of substitution of the spring arrangement for a pneumatic tyre, all that is necessary is to turn off the tyre beading of the original artillery wheel, when it will form the inner part of a Reid-Riekie spring wheel of the same outer diameter as the pneumatic.



Three views of the Reid-Riekie wheels, showing it dismantled, with side cover plates removed and complete.

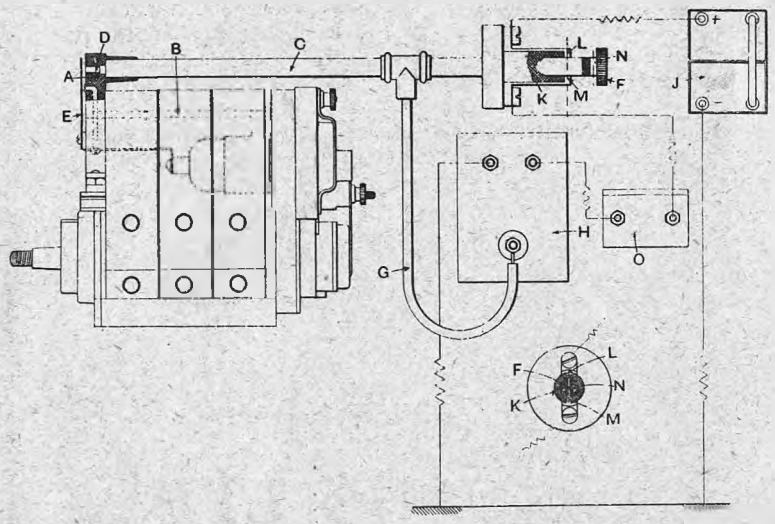
Imports and Exports of Motor Cars.

The imports of foreign motor cars, chassis, and parts into this country continue to show a downward tendency. During the ten months which have elapsed of the present year the total value of such imports has been £3,567,502, against £3,619,688 during the first ten months of last year and £3,960,498 during the corresponding months of 1907. For the past month the imports were £320,740, as compared with £263,534 during October, 1908, and £349,672 during October, 1907. The value of the foreign cars re-exported from this country in the way of trade has increased somewhat, the figures for the first ten months of the three years under review being as follow: 1909, £311,936; 1908, £282,700; 1907, £309,240. The exports of British-made cars, chassis, and parts has increased from £1,027,557 during the first ten months of last year to £1,231,005 during the ten months of the present year. The exports for October also show an increase upon those of October last year, viz., £173,007, as against £143,589.

Two Recent Patents. By Eric W. Walford, F.C.I.P.A.

AN ingenious dual ignition system forms the first of these, and is the invention of Mr. J. Dalrymple Bell, to whose inventions we have previously made reference.

The main features of this system are that the coil and switch are separate, so that the number of high-tension wires is reduced to a minimum, and if the coil be arranged near the magneto there is no high tension wire passing up to the dashboard. The whole system is reduced to about the simplest possible.



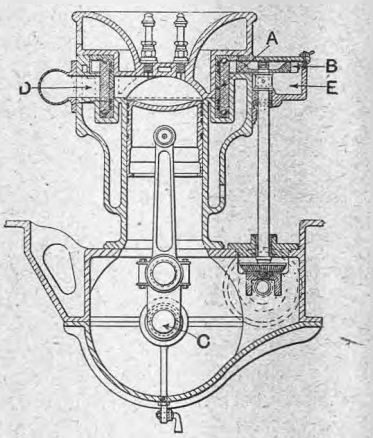
To the magneto magnets is attached an insulating block A, which serves as an abutment for the outer member C of a Bowden wire. This outer member is heavily insulated, whilst the inner member D is a conductor, and is adapted to be moved axially, so as to project through the insulating block and make contact with the blade E, which is in connection with the distributer arm. The other end of the Bowden mechanism takes the form of a switch button F, arranged on the dashboard, or near the starting handle, or at both places.

To the Bowden wire D is attached a high-tension lead G from the high-tension terminal of an induction coil H, which operates in conjunction with a battery J. Thus, assuming the battery circuit to be complete, when the Bowden wire D is operated the secondary system from the induction coil H is put into electrical connection with the magneto distributer arm, ignition taking place in the proper cylinder. Directly the engine starts the distributer arm rotates, supplying the current to the successive cylinders. Thus starting "on the switch" and slow running are easily obtained without the need of a complete battery system.

The switch button F takes the form of a plunger sliding in an insulating block K, and it may at the same time form a primary switch in the battery circuit. For this purpose the insulated block may carry two contact segments L and M in the electrical circuit which are adapted to be short circuited by a conducting connection N carried by the switch. Thus when the switch is pressed to connect the Bowden wire the primary circuit is completed.

It is preferred to incorporate in the primary circuit the auto-trembler O, which has the effect of slightly retarding the time of firing in the cylinders.

We also describe another slide valve engine. In this the valve is of the rotary type, comprising a toothed ring A arranged in and around the cylinder head and rotated by a spur gear B, which is driven from the crankshaft C by an intermediate gear. The ring A has in it a port or hole which communicates with an inlet port D and exhaust port E in the course of rotation.



The Cooper Two-stroke Engine.

Piston Valves to the Engine and Six Speeds to the Chassis.

The engine of the 20 h.p. Cooper car, manufactured by the Cooper Steam Digger Co., of King's Lynn, was decidedly one of the novelties to be seen at the show at Olympia. This engine is of the two-stroke type, with four cylinders, giving its nominal power at 750 r.p.m. and 35 h.p. at 1,800; it will also run as slowly as 100 r.p.m. The principle of the engine is as follows: There are three valves; one (the exhaust) is accounted for by ports which are uncovered at the bottom of the stroke of the piston. The others are piston valves. The piston is of the usual shape found in petrol engines, but is mounted in steam fashion, the guide for the piston rod forming a male cone, which fits at the bottom of the stroke into the female cone of the underside of the piston. The piston valves are operated by connecting rods mounted on a skew gear-driven sideshaft. On the compression stroke the underside of the piston draws in the charge through its own piston valve. On the firing stroke the piston descends over the conical piston rod guide, compressing the charge underneath, and forcing it at a time determined by the second piston valve into the cylinder on the top of the exhaust gases now passing through the exhaust ports. The inlet piston valve is plain, as it only has to stand a low pressure, but the second piston valve has rings. This valve is descending when the explosion takes place, and thus helps to drive the engine. The chassis is live axle driven, and there are no less than six speeds provided by means of a three-speed gear box and a double direct drive with duplicate crown bevels and driving pinions connected by dog clutches through a separate side gear lever. The chassis has also adjustable spring suspension, that at the rear being by quarter-elliptic springs somewhat similar to those of the Lanchester type.

Flashes.

On the Chislehurst to Orpington road motorists cannot fail to notice a large board painted "Aerodrome" adjoining the road near the latter place. This is part of the estate owned by Mr. Austin, a local motorist, who offered to contribute £200 to a London hospital if M. Blériot would fly round his grounds. An aviator with an English machine is now making experiments at this place, which is said to be very suitable. It is to be hoped other estate owners will follow the sporting example instanced, as British aviators are hampered as regards suitable flying grounds, especially in the vicinity of the Metropolis.

* * *

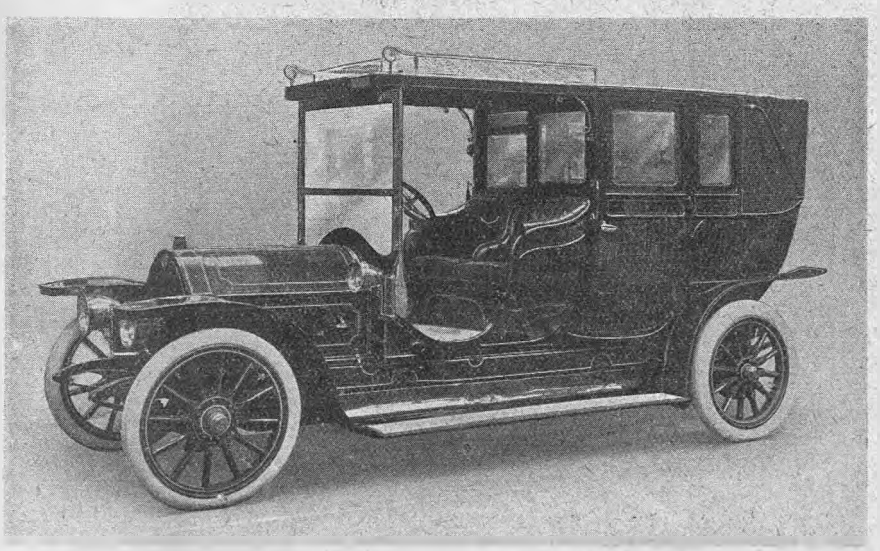
His Majesty the King of Spain has been graciously pleased to confer upon Mr. Harvey Du Cros the order of Isabella La Catholica for his services in connection with the pneumatic tyre industry. A telegram to this effect was received from King Alphonso too late to be read at the coming of age celebration on Friday evening last week.

* * *

To commemorate the opening of its new premises in Whitcomb Street the Automobile Association presented all its guests at the opening dinner with a neat ash tray similar in design to the well-known badge.

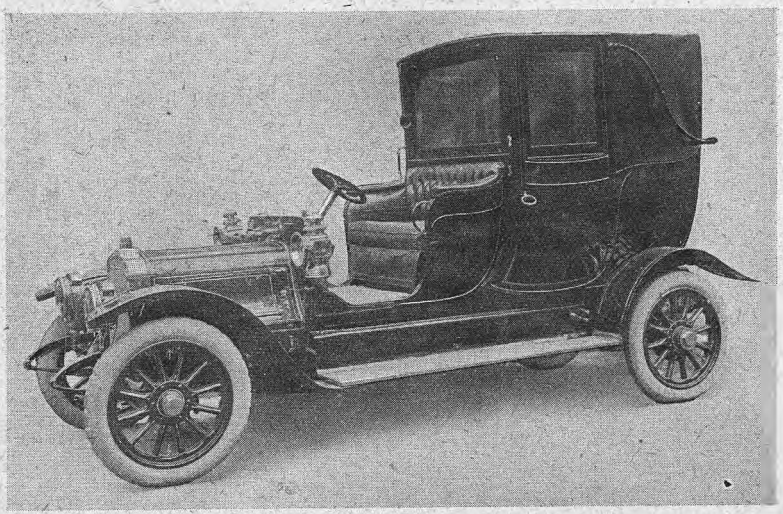
* * *

Accurate figures relating to tests with fuels other than petrol are always interesting, but the value of the tables contained in *Motor Traction* of Saturday, November 20th, is greatly enhanced by reason of the fact that they contain comparative results with three different fuels. Petrol, alcohol, and benzol were the fuels selected, and the trials were carried out in connection with the French utility motor vehicle trials which have recently concluded. It is interesting to note that in the majority of cases a slightly greater mileage was obtained with benzol than with either petrol or alcohol. Altogether the figures contained in the tables are most interesting.



AT OLYMPIA. An imposing landaulet body shown on a 25-30 h.p. Darracq chassis.

Mr. C. E. Whittaker, late of Imperial Motors, Ltd., writing us from Odessa, says that there is a big motor boom in that city. The first car that met his eye upon arrival in the city on the Black Sea was a Humber taxicab. No commercial cars appear to be in use up to the present.



AT OLYMPIA. Single landaulet with open front on a 15 h.p. Talbot chassis.

A police trap is being regularly worked on the Brighton Road at Croydon. In this connection it should be noted that further impudent robberies are reported from the neighbourhood, and, as usual, the thieves got clean away. The natural inference is too obvious for comment.

* * *

The next election of members to the Royal Automobile Club will take place on Wednesday, 8th December. One hundred and sixteen applications for membership have already been received for this election, which will be the last this year. On and after the 1st January next the entrance fee will be raised from twelve to twenty guineas.

* * *

A dozen Renard road trains which are promised next year for the conveyance of Kent fruit produce to London will hardly improve the roads, but considering the amount of heavy motor traffic in the county the road surface stands up remarkably well.

* * *

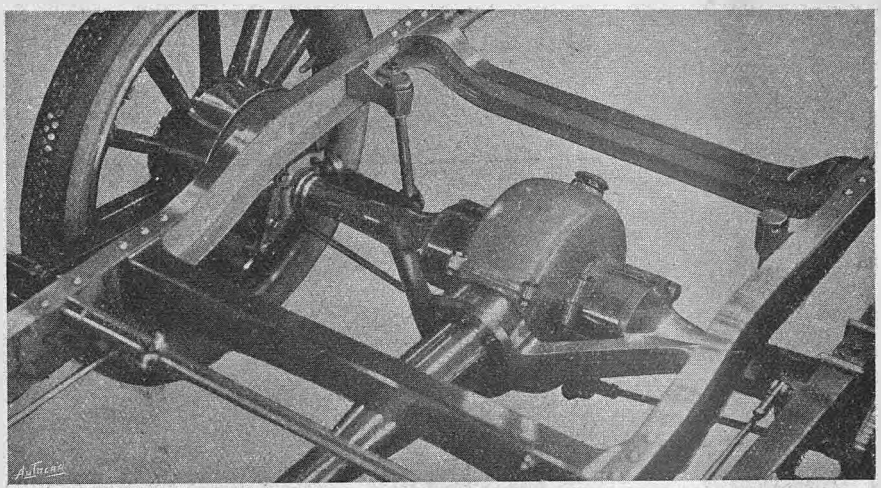
Undoubtedly the Pneumatic Tyre Majority Celebration—one of the most important functions of the year so far as cyclists and motorists are concerned, and historic also, standing out as it will for all time in the annals of wheel life—owes much of its success to Mr. W. Geo. Williams, of the Deasy Motor Co., who has acted so ably as hon. secretary of the London committee. Mr. Williams's long connection with the cycle and motor industries, both at home and on the Continent, made him an ideal organiser for such an event, and the success of the function reflects the greatest credit upon him.

At Feltham Police Court on Monday Mr. Frederick Kerr, of Parkbrooke, Hampton-on-Thames, was summoned by the Chief Constable of Wiltshire for failing to give the name and address of the driver of a motor car which, it was alleged, was driven recklessly at St. Thomas's Bridge, near Salisbury, on July 31st. It apeared from the evidence that the car was timed over a furlong by an electrical apparatus. The car was not stopped, the number being taken as it passed. Several days later defendant received a notice from the Chief Constable of Wiltshire that a car of which he was the registered owner had been timed, and was found to have been travelling at twenty-eight miles an hour, and demanding the name and address of the driver. The defendant placed the matter in the hands of the Royal Automobile Club. The name and address were not disclosed, hence these proceedings. Mr. Deane, for defendant, contended that a motorist who passed through a measured distance and simply had his number taken could not possibly be in a position to make a good defence. The proper plan, he held, was to stop the car at the time and to tell the driver that he would be summoned for some particular offence under the Motor Car Act. In this case the driver was not stopped, and nothing was known about the matter until the defendant received a letter from the Chief Constable of Wiltshire stating that the driver was going at an excessive speed, and that he (the Chief Constable) contemplated taking proceedings against him for reckless driving. A great many people had received similar notices and had brought them to the Royal Automobile Club, and he, as the legal adviser to the Club, had advised that the notices were bad. There was no obligation on the owner of a motor car to disclose the name and address unless an offence had been committed under Section 1 of the Motor Car Act. Here the Chief Constable stated in the notice that he contemplated taking proceedings, but until he had finished contemplating and had stated a definite offence there was no obligation on the owner to disclose the name and address. The Bench, ignoring the legal points submitted by Mr. Deane, imposed a fine of £16 7s., including costs. Notice of appeal was given.

The Rapidin Co. have acquired the old gunpowder mills at Dartford, Kent, where they intend to produce the new motor spirit. It almost suggests "Powder" or "Shot" as a happier title, especially as we already have Shell!

* * *

The effect on traffic in London brought about by the motor car in general, and the taxicab in particular, becomes more marked every year. The speed of traffic has become accelerated, and consequently there is less congestion, so that facilities of street travel are much improved. One evening during the show week at Olympia we made careful count of all horsed vehicles, excluding cabs standing on the rank, between Addison Road Bridge and the Piccadilly Hotel, a distance of upwards of three miles, and could only number up to 123. Motor vehicles of all classes were quite innumerable, and they formed a large majority.



AT OLYMPIA. The well-designed torque tube and back axle on the 12-15 h.p. Peugeot cars.

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The attendance of the public at the motor exhibition at Olympia shows an increase of over 36,000 upon that of last November, the figures up to and including Friday night being:

	This Year.	Last Year.	Increase.
Nov. 12th	10,808	8,047	2,761
,, 13th	23,888	17,702	6,196
,, 15th	20,616	16,044	4,572
,, 16th	23,564 (2s. 6d. day)	18,984	4,580
,, 17th	32,567 (Record)	25,695	6,872
,, 18th	27,312 (Record for 2s. 6d. day)	21,716	5,596
,, 19th	26,705	20,990	5,715

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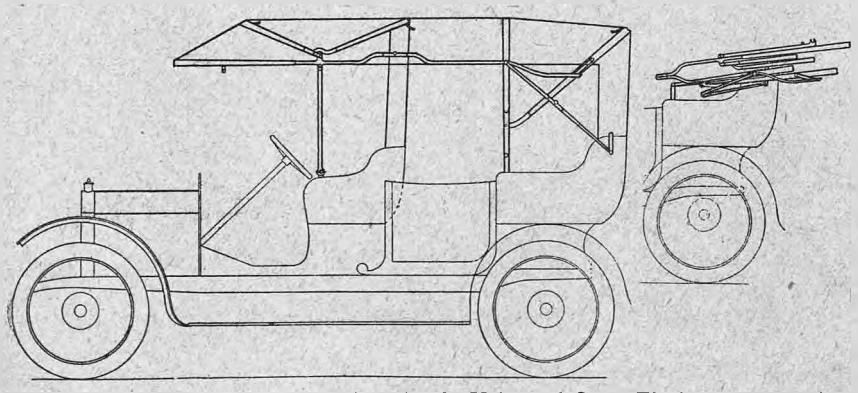

AT OLYMPIA. A Cape cart hood by A. Meier and Son. The foremost support of the hood on each side folds up and enables the operator when standing in the back of the car to fold the hood back single handed.

"Mountaineering by Motor Car" forms publication No. 194 of De Dion-Bouton (1907), Ltd. This publication includes the descriptions of the climbs made on a De Dion single-cylinder car by Mr. W. D. Fawcett, to the Mer de Glace and other high places around Chamonix, which appeared in recent issues of *The Autocar* commencing on October 16th. Copies of the booklet, which forms very interesting reading, can be obtained on application to De Dion-Bouton (1907), Ltd., 10, Great Marlborough Street, Regent Street, London, W.